

FINAL

**SASOL MINING
MIDDELBULT - BLOCK 8 - SHONDONI**

EIAR (NEMA & MPRDA)

**DRAFT
ENVIRONMENTAL
MANAGEMENT
PLAN**

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COMPILED FOR

SASOL MINING (Pty) Ltd
Middelbult – Block 8 – Shondoni

COMPILED BY



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*Sustainable Environmental Solutions
through
Integrated Science and Engineering*

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7. ENVIRONMENTAL MANAGEMENT PLAN

This Chapter, along with Chapter 8, essentially represents the Draft Environmental Management Plan (EMP) required by the authorities. It is added to this EIAR in order to illustrate the range of measures contemplated for Environmental Management at Middelbult – Block 8 – Shondoni, as well as to illustrate their potential efficiency in managing the environmental impacts.

7.1 MANAGEMENT OBJECTIVES USED FOR MEASURES DESIGN

The Management Measures have been conceptualized, designed and commissioned to achieve certain Management Objectives.

Management objectives are two fold in nature, namely:

- Attainment of Formal Compliance (legal compliance)
- Attainment of Material Compliance (technical compliance which could be qualitative/generic (prevent impact, minimize impact, monitor impact) or quantitative (measure against guidelines/emission standards/water quality objectives, etc.)

The Formal Compliance required at Middelbult – Block 8 – Shondoni has been dealt with extensively in the Enviro-Legal Framework compiled for the site for both existing, as well as for proposed new activities, and in which all licenses, permits and other authorizations which are legally required have been identified and discussed – section 4.2 in VOLUME I of this submission.

As far as Material Compliance is concerned, the following guidelines and compliance conditions/standards have been identified by the specialists to be applicable to the various environmental components, and which were considered for the design of management measures for all the project life cycle phases including the planning and design phase, construction phase, operational phase, decommissioning and closure phase, as well as the post closure phase:

| Environmental Component | Material Compliance Guideline/Standard |
|-------------------------------------|--|
| Meteorology | None. |
| Topography | None. |
| Soils | <p>Chamber of Mines of South Africa. 1981. Handbook of Guidelines for Environmental Protection, Volume 3/1981. The Rehabilitation of Land Disturbed by Surface Coal Mining in South Africa.</p> <p>Wischmeier, W.H., C.B. Johnson and B.V. Cross. 1971. A Soil Erodibility Nomograph for Farm Land and Construction Sites. J. Soil Water Conserv. 26: 189 – 193.</p> |
| Land Capability and Land Use | <p>Land use and Wetland/Riparian Habitat Working Group. September 1999. Wetland/Riparian Habitats : A Practical Field Procedure for Identification and Delineation.</p> <p>Scotney, D.M., F.Ellis, R.W. Nott, K.P. Taylor, B.T. van Niekerk, E. Verster and P.C. Wood. March 1987. A System of Soil and Land Capability Classification for Agriculture in the SATBVC States.</p> |

| | |
|---------------------------|---|
| Geology | None. |
| Ground Water | Integrated Water Use License Conditions. |
| | Waste License Conditions. |
| | DWAF, Second Edition, 1998. Waste Management Series. Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste. |
| | DWAF, Second Edition, 1998. Waste Management Series. Minimum Requirements for Waste Disposal by Landfill. |
| | DWAF, Second Edition, 1998. Waste Management Series. Minimum Requirements for Water Monitoring at Waste Management Facilities. |
| | South African Bureau of Standards. SABS 0286:1998, Code of Practice Mine Residue. |
| Surface Water | Integrated Water Use License Conditions. |
| | Waste License Conditions. |
| | Best Practice Guideline A2 – Water Management for Mine Residue Deposits; 2006. |
| | Best Practice Guideline A4 – Pollution Control Dams; 2006. |
| | Best Practice Guideline A6 – Water Management for Underground Mines; 2006. |
| | Best Practice Guideline G1 – Storm Water Management; 2006. |
| | Best Practice Guideline G2 – Water and Salt Balances; 2006. |
| | Best Practice Guideline G3 – Water Monitoring Systems; 2006. |
| | Best Practice Guideline G4 – Impact Prediction; 2006. |
| | Best Practice Guideline H1 – Integrated Mine Water Management; 2006. |
| | Best Practice Guideline H2 – Pollution Prevention and Minimization ; 2006. |
| | Best Practice Guideline H3 – Water Reuse and Reclamation; 2006. |
| | Best Practice Guideline H4 – Water Treatment; 2006. |
| | Conditions of GNR 704. |
| Plant Life | IUCN (2004) Red List of Threatened Species. |
| Animal Life | Red Data Book of the Mammals of South Africa: A Conservation Assessment. Yolán Friedman & Brenda Daly (eds), CBSG Southern Africa/Conservation Breeding Specialist Group (SSC/IUCN)/Endangered Wildlife Trust (EWT), South Africa. |
| | IUCN (2004) Red List of Threatened Species. |
| Aquatic Ecosystems | Integrated Water Use License Conditions. |
| | Ramsar Wetlands Convention (2002) Resolution VIII.9 Guidelines for incorporating biodiversity-related issues into EIA legislation and/or processes and in SEA’ adopted by the CBD, and their relevance to the Ramsar Convention. |
| Air Quality | Atmospheric Emissions License Conditions. |
| | National Ambient Air Quality Standards. |
| | SANS 1929 Dust Fallout Standards. |
| | WHO Ambient Air Guidelines. |
| Noise | SANS 10103:2008. Measurement and Rating of Environmental Noise with respect to Land Use, Health, Annoyance and Speech Communication, Edition 6. |
| | World Health Organization, Geneva, 1999. Guidelines for Community Noise. |

| | |
|-----------------------|--|
| Visual | None – Measures at discretion of Visuals Specialist. |
| Heritage | None – Measures at discretion of Specialist Archaeologist who performed Phase I Heritage Impact Assessment, subject to approval by SAHRA. |
| Socio-Economic | BBBEE-Scorecard. |

As can be gleaned from the above, management objectives exist in various formats and are available to different levels of detail and sophistication. For aspects related to waste management, water management, air quality management and noise management, guidelines and objectives are clear and well defined, whilst for aspects such as soils, plant life, animal life, heritage and visual aspects, objectives are less well defined and sometimes even non-existent. However, for this project, each specialist who was involved in designing the environmental management plan, used his own discretion and expertise to accommodate the various levels of objectives in the conceptualization and design of the proposed management measures.

Measurable compliance standards for critical environmental management measures such as for instance surface water and ground water quality management, will be contained as compliance conditions in the various permits and licenses to be issued by the authorities.

PROPOSED MANAGEMENT MEASURES

The selection, design and implementation of proposed management measures for Middelbult – Block 8 – Shondoni should comply with the existing guidelines listed in the previous section, should be according to current best practice and should be in accordance with the BPEO (Best Practicable Environmental Option) principle.

This document represents a combination of the previous Environmental Management Plans for Middelbult and Block 8 (Original Middelbult EMPR approved in 2002, and Block 8 EMPR Addendum approved in 2003), with a Draft Environmental Management Plan for the proposed new Shondoni Operations. Although, therefore, the existing operations are beyond the construction phase, and in fact some of which have already been decommissioned and closed, the Management Measure Tables provided hereafter, will nevertheless include their construction phases, as it did in the original EMP's compiled for these activities.

However, for the newly proposed activities related to Shondoni, all life cycle phases are relevant and therefore the **planning and design** phase, as well as the construction phase, operational phase, decommissioning and closure phase and the post closure phases are relevant.

Planning and design phase measures play a big role at Sasol Mining in Secunda. For Shondoni, various alternatives were considered in the planning phase for site selection, conveyor route selection, technology selection and mining method selection. Effective environmental control was a paramount consideration during the design of the conveyor system (noise, dust and spillage control) as well as during design of the ground water and surface water management measures, which included aspects related to detailed mine planning, careful selection of increased extraction sections, placement of overburden berms at shaft areas, as well as the design of PCD liner systems.

In conclusion it can therefore be stated that all proposed Environmental Management Measures for Middelbult – Block 8 – Shondoni, relate to current best practice, comprising practical measures most of which are currently being employed by Sasol Mining in the effective management of underground coal mining related impacts.

7.3

ENVIRONMENTAL MANAGEMENT PLAN (TABLES)

Management Measures Tables have been compiled for each of the Middelbult – Block 8 - Shondoni life cycle phases, namely construction, operation, decommissioning and closure, as well as post closure. Selected columns from the Impact Assessment Significance Rating Tables were used as basis for the compilation of the Management Measures Tables. The Tables were further expanded with columns to provide for the implementation and compliance and performance auditing of the measures, and therefore represent the integrated and summarized EMP (Environmental Management Plan) for the Middelbult – Block 8 – Shondoni underground coal mine.

NB! For more detailed descriptions of the management measures as they relate to specific environmental components, please refer to the Specialist Reports attached as APPENDICES in VOLUME IV of this submission.

The EMP Tables contain the following columns:

- Activity/Aspect Description and Legal Reference
- Impact Identification and Description
- Risk Level Before Mitigation
- Mitigatory Difficulty
- Mitigation/Management Objective
- Proposed Mitigation Measure
- Severity Total After Mitigation – C Number
- Risk Level After Mitigation
- Responsible Person
- Time Schedule
- Budget Quantum
- Budget Allocation
- Provisioning Method
- Compliance Audit
- Performance Assessment

7.3.1 Planning and Design Phase Management Measures

The entire purpose of conducting an EIA and compiling a Draft EMP prior to any project being constructed and commissioned, is to timeously identify potential environmental impacts and to pro-actively design measures that can be implemented during construction, commissioning and operation of any mine or plant.

The techno-economic study conducted for the Middelbult – Block 8 – Shondoni Project, the relevant details of which are contained in Chapter 4 – VOLUME I of this submission, optimized all the design elements of the mine with respect to environmental management. The extent of these pre-emptive design elements in the project, is further eluded to in the section on Consideration of Alternatives, Chapter 4 – VOLUME I. Similarly, the underground mine design incorporated the Water Management Mine Planning Tool developed for Sasol Mining some years back. This Design Tool is used to optimize the selection of High Extraction Panels with the view of minimizing ground water ingress into the mine.

Therefore, although the proposed Environmental Management Measures are listed in the Tables under headings for Construction Phase, Operational Phase, Decommissioning and Closure Phase and Post Closure Phase, all these proposed measures must be conceptualized and designed prior to entering any one of the phases. It should also be noted that for example for measures to be effective during the post closure phase, measures contemplated for instance for preceding phase, could become pre-requisites for the effective implementation of measures for later phases.

A separate listing of Measures is therefore not done for the Planning and Design Phase, as all measures proposed for the remaining four phases, need to be planned and designed in advance.

7.3.2 Construction Phase Management Measure Tables

| CONSTRUCTION PHASE - Management Measures | | | | | | | | EMP COMPONENTS | | | | | | |
|---|--|---|-----------------------|----------------------------------|-----------------------------|--|-----------------------------|---|------------------------------|--|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation – C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Topography | | Topography | | | | | | Topography | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | The coal throw out stockpile will change the topographical view, but will not alter the topographical profile. | Level 6 Risk | LOW | Not required. | Not required. | C3 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | Some excavation will take place in the construction of the dams, but will not alter the topographical profile. | Level 6 Risk | LOW | Not required. | Not required. | C3 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Bi-Annually. | Annual |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | |
| Taking water from a water resource - Section 21 (a). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |

| CONSTRUCTION PHASE - Management Measures | | | | | | | | EMP COMPONENTS | | | | | | |
|---|-----------------------------------|--|-----------------------|----------------------------------|-----------------------------|--|-----------------------------|--|---------------|----------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (j). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | | Exemptions from GNR 704 | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | | MINE SHAFT AREAS | | | | | | |
| Construction and commissioning of the shaft complex at Shondoni. | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| All other remaining operational shafts (Main Shaft, West Shaft and Ithembaletu Shaft) and decommissioned shafts (North Shaft and North-West Shaft). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | |
| None. | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | | CONVEYOR BELT ROUTE | | | | | | |
| Construction and commissioning of the conveyor | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
| | | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Soils and Land Capability | | Soils and Land Capability | | | | | | Soils and Land Capability | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | |

| CONSTRUCTION PHASE - Management Measures | | | | | | | | EMP COMPONENTS | | | | | | |
|---|--|--|-----------------------|---|--|--|-----------------------------|--|------------------------------|-----------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation – C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Contamination of soil footprint by RoM Product, and loss of soil utilization | Level 4 Risk | Medium | Prevent contamination of resource and minimise area of impact | Keep area as small as possible and maintain storm water controls and barrier layer | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Contamination of soil footprint by RoM Product and Hydrocarbon spills, and loss of soil utilization | Level 4 Risk | Medium | Prevent contamination of resource and minimise area of impact | Keep area as small as possible and maintain storm water controls and barrier layer | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | Contamination of subsoils by dirty water seepage, and loss of utilization of the resource | Level 3 Risk | Medium | Prevent contamination of resource and minimise area of impact | Keep area as small as possible and maintain storm water controls and barrier layer - Dam Seal | C3 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | None - Completed during construction phase - No added impacts | | | | | | | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Possible contamination of soil footprint outside of bunded area. Loss of soil utilization | Level 5 Risk | High | Keep soils from being Contaminated | Bunding of Fuel Tanks and management of fuel filling procedures - Housekeeping issue | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Loss of soil and land utilization if this is ongoing into the operational phase. | Level 5 Risk | Medium | Protection of Resource | Storage of soil with vegetation | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | Potential ongoing impact on soil moisture and loss of land utilization | Level 5 Risk | Medium | Protection of Resource | Removal and storage of Utilizable soil | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Completed in Construction Phase - No additional impacts of consequence other than the loss of the soil resource and utilization potential | Level 5 Risk | Low | Save stored resource | Minimise area of impact and save stored resource | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Loss of soil resource and utilization potential and possible contamination by product and hydrocarbon spills | Level 3 Risk | Medium | Keep spillage to minimum | Clean up spills immediately and maintain equipment and vehicles | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | Ongoing loss of soil resource and utilization potential due to service road | Level 4 Risk | Medium to High | Reduce area of impact and maintain soil storage erosion and compaction of service road and stockpiles | Routine maintenance and vegetative cover control - monthly house keeping | C2 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | On-going loss of soil resource and utilization potential and possible contamination by product and hydrocarbon spills | Level 3 Risk | Medium | Keep spillage to minimum | Clean up spills immediately and maintain equipment and vehicles | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | Loss of soil resource and utilization potential and possible contamination by product and hydrocarbon spills | Level 3 Risk | Medium | Protection of Resource | Removal and storage of Utilizable soil | C3 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | |
| Taking water from a water resource - Section 21 (a). | The on-going reduction in water resources will potentially reduce the irrigation potential and render the land capability less productive due to lowering of soil moisture content. | Level 4 Risk | High | Retain Soil Moisture | Augment Water Supplies | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | Diversion of water from its present course could affect the land capability in terms of productivity due to reduction in soil moisture content | Level 5 Risk | High | Retain Soil Moisture | Augment Water Supplies as far as possible by preventing the loss of catchment yield. Given the low level of risk, this action is not seen as required. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | Discharge of waste to unprotected soils will render them less useable. The loss of this resource could potentially be permanent if not managed. | Level 5 Risk | High | Protect soil Quality | Line all channels | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | N/A to soils directly. However, the contamination of the water resource would ultimately impact on soils that are irrigated or over which they flow if not protected. | Level 5 Risk | High | Protect soil Quality | Line all channels | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | Diversions of water courses or rivers will impact the soils over which the water is engineered to flow. These soils will be lost from the system and potentially be contaminated or impacted by poor quality water | Level 5 Risk | High | Retain Soil Moisture | Augment Water Supplies as far as possible by preventing the loss of catchment yield. Given the low level of risk, this action is not seen as required. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation | Taking of water from the earth's system will alter the soil moisture dynamics which will in turn affect the biosphere and ecology of the area that is | Level 4 Risk | High | Retain Soil Moisture | Augment Water Supplies as far as possible by preventing the loss of catchment yield. Given the low level of risk, this action is not seen as required. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |

| CONSTRUCTION PHASE - Management Measures | | | | | | | | EMP COMPONENTS | | | | | | |
|---|---|---|-----------------------|---|---|--|-----------------------------|---|------------------------------|-----------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation – C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| of an activity or for the safety of people - Section 21 (j). | dependent on and adapted to the present biological balance. | | | | | | | | | | | | | |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | | Exemptions from GNR 704 | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | |
| NEMWA Section 19(3) and GN 718. | | | | | | | | | | | | | | |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | | MINE SHAFT AREAS | | | | | | |
| On-going mining - haulage of raw product to surface and beneficiation | Continued loss of soil resource and utilization potential, plus possible contamination of footprint soils. | Level 5 Risk | Moderate | Prevent Loss of and Contamination to the resource | Maintain surface water controls, dust suppression and control spillage, and maintain storage facilities | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Possible contamination of footprint soils and stored berm materials by dirty water in area of shaft workings | Continued loss of soil resource and utilization potential, plus possible contamination of footprint soils. | Level 4 Risk | Moderate | Prevent Loss of and Contamination to the resource | Maintain surface water controls, dust suppression and control spillage, and maintain storage facilities | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Compaction of in-situ footprint and stored material, plus erosion of unprotected areas and storage facilities. | Continued loss of soil resource and utilization potential | Level 6 Risk | Moderate | Prevent loss of resource | Maintain surface water controls, and movement of vehicles | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Vehicle impacts | Loss of resource by dust emissions | Level 6 Risk | Moderate | Prevent Loss of the resource | Maintain surface water controls, dust suppression and control spillage | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| All other remaining operational shafts (Main Shaft, West Shaft and Ithembaletu Shaft) and decommissioned shafts (North Shaft and North-West Shaft). | Continued loss of soil resource and utilization potential, plus possible contamination of footprint soils. | Level 5 Risk | Moderate | Prevent Loss of and Contamination to the resource | Maintain surface water controls, dust suppression and control spillage, and maintain storage facilities | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | |
| Ongoing operation of shafts, access roads and haulage ways | Continued loss of soil resource with possibility of contamination by operational activities - Rom product and vehicle impacts - Hydrocarbons, compaction and/or erosion | Level 5 Risk | Medium | Prevent contamination and loss of resource | Restrict area of impact and manage spillage of product and hydrocarbons | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Potential for contamination of stored soils from adit declines and shafts operations - water, by product and hydrocarbons from operation vehicles | The continued loss of resource and utilization potential due to operation of mining infrastructure and storage of product (RoM) and natural materials | Level 5 Risk | Medium | Prevent contamination and loss of resource | Restrict area of impact and manage spillage of product and hydrocarbons | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | | CONVEYOR BELT ROUTE | | | | | | |
| Operation of haulage facility | Ongoing loss of resource and soil utilization | Level 3 | Medium | Protection of Resource | Removal and storage of Utilizable soil | C3 | Level 5 Risk | Environment | During the | Part of mining costs. | Opex | Operating | Bi-annually. | Annual |

| CONSTRUCTION PHASE - Management Measures | | | | | | | | EMP COMPONENTS | | | | | | |
|---|---|---|-----------------------|---|---|--|-----------------------------|---|------------------------------|--|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| | potential, and the potential for contamination by spillage of product and hydrocarbons | Risk | | | | | | al Manager | operational phase | | | funds. | | |
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| | | EMP COMPONENTS | | | | | | | | | | | | |
| Ground Water | | Ground Water | | | | | | Ground Water | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | The construction of a 15 000t ROM coal stockpile area at Shondoni Shaft. The construction activities consist of the preparation of a suitable footprint area and will in itself not lead to any potential ground water pollution. | Level 5 Risk | LOW | Ensure that construction activities do not introduce any substance into the sub-surface that can lead to ground water pollution. | Prevent spillages of any hazardous liquid or solid substance used during the construction of the ROM stockpile footprint. | C2 | Level 5 Risk | Environment al Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Conveyor Pedestal will not intersect ground water, so no impact will take place. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | The construction of a Storm Water Pollution Control Dam that can lead to a deterioration of ground water quality directly beneath the facility. | Level 5 Risk | LOW | Ensure that construction activities do not introduce any substance into the sub-surface that can lead to ground water pollution. | Prevent spillages of any hazardous liquid or solid substance used during the construction of the Pollution Control Dam. | C2 | Level 5 Risk | Environment al Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | Conveyor Pedestal will not intersect ground water, so no impact will take place. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | The storage of diesel fuel in storage tanks can lead to ground water pollution due to spillages/leaks. | Level 6 Risk | LOW | Ensure that diesel tanks are placed in industry-standard bunkers with the appropriate lining systems to prevent the leakage of any diesel spill away from the bunker. | All spillages must be captured inside the bunded areas before any spillage to the surrounding environment takes place. | C3 | Level 6 Risk | Fuel Contractor | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Clearance of vegetation will not intersect ground water, so no impact will take place. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | Any water removed from the No.4 Coal seam will be deemed polluted and stored in other sections of mined out areas, or pumped to surface to the Storm Water Pollution Control Dam (SWPCD). | Level 6 Risk | LOW | Minimise the volumes of water to be pumped to surface to surface pollution control dams. | Optimise storage space in old underground units to prevent the need to pump water from underground mine workings to surface water pollution control dams. | C3 | Level 6 Risk | Environment al Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Installation of Radio System will not intersect ground water, so no impact will take place. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | The construction of an access road will not intersect ground water, so no impact will take place. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | The construction of the Overhead Power line will not intersect ground water, so no impact will take place. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | The construction of a coal conveyor belt will not intersect ground water, so no impact will take place. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | This activity only refers to surface disturbance. Since no ground water is intersected, no impact will take place. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | |
| Taking water from a water resource - Section 21 (a). | Ground water seepage into the shaft complex during construction activities, through weathered and fresh aquifer units (to a depth of 120 meters). | Level 6 Risk | LOW | If significant influxes of ground water occur, remove the water from the shaft construction area. | Grout/seal influx zones and pump seepage water to the appropriate surface water control dam | C2 | Level 6 Risk | Environment al Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Discharging waste or water containing | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |

| CONSTRUCTION PHASE - Management Measures | | | | | | | | EMP COMPONENTS | | | | | | |
|---|--|---|-----------------------|--|---|--|-----------------------------|---|------------------------------|--|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation – C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | | | | | | | | | | | | | | |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | Ground water seepage captured in the shaft complex during construction activities will be pumped to pollution control dams on surface. Since the water originated in a construction area, it is considered polluted. | Level 6 Risk | LOW | If significant influxes of ground water occur, remove the water from the shaft construction area. | Pump excess ground water to pollution control dams on surface | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | Any water removed from the No.4 Coal seam will be deemed polluted and stored in other sections of mined out areas. A detailed mine optimisation plan has been designed to create the necessary storage of water in mined out areas for the total Life of Mine. | Level 6 Risk | LOW | Minimise the volumes of water to be pumped to surface to surface pollution control dams. | Optimise storage space in old underground units to prevent the need to pump water from underground mine workings to surface water pollution control dams. | C3 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | | Exemptions from GNR 704 | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | |
| NEMWA Section 19(3) and GN 718. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | | MINE SHAFT AREAS | | | | | | |
| Construction and commissioning of the shaft complex at Shondoni. | Depletion in ground water availability and quality as a result of ground water seepage during the construction of the shaft complex. | Level 6 Risk | LOW | Prevent influx of ground water into the shaft complex . Prevent long residence time of ground water accumulation in the shaft complex. | Grout/seal influx zones and pump seepage water to the appropriate surface water control dam | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| All other remaining operational shafts (Main Shaft, West Shaft and Ichembaletu Shaft) and decommissioned shafts (North Shaft and North-West Shaft). | Depletion in ground water availability and quality as a result of ground water seepage during the construction of the shaft complex. | Level 6 Risk | LOW | Prevent influx of ground water into the shaft complex . Prevent long residence time of ground water accumulation in the shaft complex. | Grout/seal influx zones and pump seepage water to the appropriate surface water control dam | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | |
| Construction and commissioning of | No mining activities will commence at Shondoni | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |

| CONSTRUCTION PHASE - Management Measures | | | | | | | | EMP COMPONENTS | | | | | | |
|---|---|---|-----------------------|---|--|--|-----------------------------|---|------------------------------|--|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| the shaft complex at Shondoni. | before the shaft complex is completed. | | | | | | | | | | | | | |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | | CONVEYOR BELT ROUTE | | | | | | |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area). | The construction of a coal conveyor belt will not intersect ground water, so no impact will take place. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| | | | | | | | | EMP COMPONENTS | | | | | | |
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Surface Water | | Surface Water | | | | | | Surface Water | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Impact on water quality: Stripping of vegetation and topsoil during construction activities, resulting in increased suspended solids and some risk of erosion | Level 6 Risk | Low | Prevent contamination of surface water runoff from the shaft area construction. | - Monitor surface water quality upstream and downstream of construction areas - If erosion is evident or water quality monitoring indicates increased suspended solids, water management at construction areas will be reviewed | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Opex | Project funds | Annual | Annual |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Impact on water quality: Stripping of vegetation and topsoil during construction activities, resulting in increased suspended solids and some risk of erosion | Level 6 Risk | Low | Prevent contamination of surface water runoff from the shaft area construction. | - Monitor surface water quality upstream and downstream of construction areas - If erosion is evident or water quality monitoring indicates increased suspended solids, water management at construction areas will be reviewed | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Opex | Project funds | Annual | Annual |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | Impact on water quality: Stripping of vegetation and topsoil during construction activities, resulting in increased suspended solids and some risk of erosion | Level 6 Risk | Low | Prevent contamination of surface water runoff from the shaft area construction. | - Monitor surface water quality upstream and downstream of construction areas - If erosion is evident or water quality monitoring indicates increased suspended solids, water management at construction areas will be reviewed | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Opex | Project funds | Annual | Annual |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | Impact on water quality: Stripping of vegetation and topsoil during construction activities, resulting in increased suspended solids and some risk of erosion | Level 6 Risk | Low | Prevent contamination of surface water runoff from the shaft area construction. | - Monitor surface water quality upstream and downstream of construction areas - If erosion is evident or water quality monitoring indicates increased suspended solids, water management at construction areas will be reviewed | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Opex | Project funds | Annual | Annual |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Impact on water quality: Stripping of vegetation and topsoil during construction activities, resulting in increased suspended solids and some risk of erosion | Level 6 Risk | Low | Prevent contamination of surface water runoff from the shaft area construction. | - Monitor surface water quality upstream and downstream of construction areas - If erosion is evident or water quality monitoring indicates increased suspended solids, water management at construction areas will be reviewed | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Opex | Project funds | Annual | Annual |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Impact on water quality: Stripping of vegetation and topsoil during construction activities, resulting in increased suspended solids and some risk of erosion | Level 6 Risk | Low | Prevent contamination of surface water runoff from the shaft area construction. | - Monitor surface water quality upstream and downstream of construction areas - If erosion is evident or water quality monitoring indicates increased suspended solids, water management at construction areas will be reviewed | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Opex | Project funds | Annual | Annual |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | Impact on water quality: Based on Sasol Mining's experience at similar shafts, groundwater quality from the shafts is likely to be slightly to moderately impacted on in terms of sulphates and TDS, with potential impacts if allowed to spill to the catchment. | Level 6 Risk | Low | Prevent contamination of surface water runoff from the shaft area construction. | - The water will be contained on site and used for dust suppression and to assist with drilling | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Opex | Project funds | Annual | Annual |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Impact on water quality: Stripping of vegetation and topsoil during construction activities, resulting in increased suspended solids and some risk of erosion | Level 6 Risk | Low | Prevent contamination of surface water runoff from the shaft area construction. | - Monitor surface water quality upstream and downstream of construction areas - If erosion is evident or water quality monitoring indicates increased suspended solids, water management at construction areas will be reviewed | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Opex | Project funds | Annual | Annual |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Impact on water quality: Stripping of vegetation and topsoil during construction activities, resulting in increased suspended solids and some risk of erosion | Level 6 Risk | Low | Prevent contamination of surface water runoff from the shaft area construction. | - Monitor surface water quality upstream and downstream of construction areas - If erosion is evident or water quality monitoring indicates increased suspended solids, water management at construction areas will be reviewed | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Opex | Project funds | Annual | Annual |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | Impact on water quality: Stripping of vegetation and topsoil during construction activities, resulting in increased suspended solids and some risk of erosion | Level 6 Risk | Low | Prevent contamination of surface water runoff from the shaft area construction. | - Monitor surface water quality upstream and downstream of construction areas - If erosion is evident or water quality monitoring indicates increased suspended solids, water management at construction areas will be reviewed | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Opex | Project funds | Annual | Annual |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | Impact on water quality: Stripping of vegetation and topsoil during construction activities, resulting in increased suspended solids and some risk of erosion | Level 6 Risk | Low | Prevent contamination of surface water runoff from the shaft area construction. | - Monitor surface water quality upstream and downstream of construction areas - If erosion is evident or water quality monitoring indicates increased suspended solids, water management at construction | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Opex | Project funds | Annual | Annual |

| CONSTRUCTION PHASE - Management Measures | | | | | | | | EMP COMPONENTS | | | | | | |
|---|---|---|-----------------------|---|---|--|-----------------------------|---|------------------------------|--|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation – C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | |
| Taking water from a water resource - Section 21 (a). | Impact on groundwater yield, not a surface water impact. | | | | areas will be reviewed | | | | | | | | | |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | Impact on water quality: Stripping of vegetation and topsoil during construction activities, resulting in increased suspended solids and some risk of erosion. Applicable at conveyor stream crossings . | Level 6 Risk | Low | Prevent contamination of surface water runoff from the shaft area construction. | - Monitor surface water quality upstream and downstream of construction areas - If erosion is evident or water quality monitoring indicates increased suspended solids, water management at construction areas will be reviewed | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Opex | Project funds | Annual | Annual |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | Impact on water quality: Overburden removed from the shaft excavations will be placed in an overburden stockpile. This material has the potential to contain some carbonaceous material. | Level 6 Risk | Low | Prevent contamination of surface water runoff from the overburden stockpiles. | - Construction of upstream clean water cut-off canal - Overburden dump will be located within the dirty water system and drain to dirty water dam - Overburden dump design will include consideration of seepage to ensure this drains to the dirty water system. - Monitoring of water quality in the streams | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Opex | Project funds | Annual | Annual |
| | Impact on water quality: Based on Sasol Mining's experience at similar shafts, groundwater quality from the shafts is likely to be slightly to moderately impacted on in terms of sulphates and TDS, with potential impacts if allowed to spill to the catchment. | Level 6 Risk | Low | Prevent contamination of surface water runoff from the shaft area construction. | - The water will be contained on site and used for dust suppression and to assist with drilling | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Opex | Project funds | Annual | Annual |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | Impact on water quality: Stripping of vegetation and topsoil during construction activities, resulting in increased suspended solids and some risk of erosion. Applicable at conveyor stream crossings. | Level 6 Risk | Low | Prevent contamination of surface water runoff from the shaft area construction. | - Monitor surface water quality upstream and downstream of construction areas - If erosion is evident or water quality monitoring indicates increased suspended solids, water management at construction areas will be reviewed | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Opex | Project funds | Annual | Annual |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | Impact on water quality: Based on Sasol Mining's experience at similar shafts, groundwater quality from the shafts is likely to be slightly to moderately impacted on in terms of sulphates and TDS, with potential impacts if allowed to spill to the catchment. | Level 6 Risk | Low | Prevent contamination of surface water runoff from the shaft area construction. | - The water will be contained on site and used for dust suppression and to assist with drilling | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Opex | Project funds | Annual | Annual |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | | Exemptions from GNR 704 | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | Not applicable during construction phase | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |

| CONSTRUCTION PHASE - Management Measures | | | | | | | | EMP COMPONENTS | | | | | | |
|--|---|---|-----------------------|--|---|--|-----------------------------|---|------------------------------|--|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation – C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Regulation 5. | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | |
| NEMWA Section 19(3) and GN 718. | | MINE SHAFT AREAS | | | | | | MINE SHAFT AREAS | | | | | | |
| Material from the shaft sinking activities | Impact on water quality: Overburden removed from the shaft excavations will be placed in an overburden stockpile. This material has the potential to contain some carbonaceous material. | Level 5 Risk | Low | Prevent contamination of surface water runoff from the overburden stockpiles. | - Construction of upstream clean water cut-off canal - Overburden dump will be located within the dirty water system and drain to dirty water dam - Overburden dump design will include consideration of seepage to ensure this drains to the dirty water system. - Monitoring of water quality in the streams | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Opex | Project funds | Annual | Annual |
| Dewatering of water ingress to the shaft | Impact on water quality: Based on Sasol Mining's experience at similar shafts, groundwater quality from the shafts is likely to be slightly to moderately impacted on in terms of sulphates and TDS, with potential impacts if allowed to spill to the catchment. | Level 6 Risk | Low | Prevent contamination of surface water runoff from the shaft area construction. | - The water will be contained on site and used for dust suppression and to assist with drilling | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Opex | Project funds | Annual | Annual |
| Coal handling infrastructure (shaft, bunker workshops, offices and stockpiles) | Civil activities related to construction: Impact on water quality: Stripping of vegetation and topsoil during construction activities, resulting in increased suspended solids and some risk of erosion | Level 6 Risk | Low | Prevent contamination of surface water runoff from the shaft area construction. | - Monitor surface water quality upstream and downstream of construction areas - If erosion is evident or water quality monitoring indicates increased suspended solids, water management at construction areas will be reviewed | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Opex | Project funds | Annual | Annual |
| Water management infrastructure, involving construction of: - Clean water diversion canals and berms - Pollution control dams | Impact on water quality: Stripping of vegetation and topsoil during construction activities, resulting in increased suspended solids and some risk of erosion | Level 6 Risk | Low | Prevent contamination of surface water runoff from the shaft area construction. | - Monitor surface water quality upstream and downstream of construction areas - If erosion is evident or water quality monitoring indicates increased suspended solids, water management at construction areas will be reviewed | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Opex | Project funds | Annual | Annual |
| All other remaining operational shafts (Main Shaft, West Shaft and Ithembalethu Shaft) and decommissioned shafts (North Shaft and North-West Shaft). | N/A during the operational phase. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | |
| None | The construction phase involves all activities prior to the mining of coal. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | | CONVEYOR BELT ROUTE | | | | | | |
| Stripping of topsoil and undertaking of civil works for the conveyor belt | Impact on water quality: Stripping of vegetation and topsoil during construction activities, resulting in increased suspended solids and some risk of erosion | Level 6 Risk | Low | Prevent contamination of surface water runoff from the shaft area construction. | - Monitor surface water quality upstream and downstream of construction areas - If erosion is evident or water quality monitoring indicates increased suspended solids, water management at construction areas will be reviewed | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Opex | Project funds | Annual | Annual |
| CONSTRUCTION PHASE - Management Measures | | | | | | | | EMP COMPONENTS | | | | | | |
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation – C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Plant Life | | Plant Life | | | | | | Plant Life | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Habitat destruction, loss of populations of threatened plant species, potential loss of populations of medicinal plant species, habitat fragmentation. | Level 4Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species. | Demarcate development areas and keep all activities within, compile alien plant management plan, control dust, undertake plant rescue for medicinal populations, undertake surveys during suitable season for Red List plant species within footprint of proposed infrastructure. | C3 | Level 4Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Habitat destruction, loss of populations of threatened plant species, potential loss of populations of medicinal plant species, habitat fragmentation. | Level 4Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate development areas and keep all activities within, compile alien plant management plan, control dust, undertake plant rescue for medicinal populations, undertake surveys during suitable season for Red List plant species within footprint of proposed infrastructure. | C3 | Level 4Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | Habitat destruction, loss of populations of threatened plant species, potential loss of populations of medicinal plant species, habitat fragmentation. | Level 4Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate development areas and keep all activities within, compile alien plant management plan, control dust, undertake plant rescue for medicinal populations, undertake surveys during suitable season for Red List plant species within footprint of proposed infrastructure. | C3 | Level 4Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Bi-Annually. | Annual |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | Habitat destruction, loss of populations of threatened plant species, potential loss of populations of medicinal plant species, habitat fragmentation. | Level 4Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate development areas and keep all activities within, compile alien plant management plan, control dust, undertake plant rescue for medicinal populations, undertake surveys during suitable season for Red List plant species within footprint of proposed infrastructure. | C3 | Level 4Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Yes | Annual |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Habitat destruction, loss of populations of threatened plant species, potential loss of populations of medicinal plant species, habitat fragmentation. | Level 5 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate development areas and keep all activities within, compile alien plant management plan, control dust, undertake plant rescue for medicinal populations, undertake surveys during suitable season for Red List plant species within footprint of proposed infrastructure. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Yes | Annual |
| Removal of Indigenous Vegetation of 3 hectares or more during Site | Habitat destruction, loss of populations of threatened plant species, potential loss of | Level 5 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and | Demarcate development areas and keep all activities within, compile alien plant management plan, control dust, undertake | C3 | Level 5 Risk | Environmental Manager | During the operational | Part of mining activity preparation - | Capex | Project funds | Yes | Annual |

| CONSTRUCTION PHASE - Management Measures | | | | | | | | EMP COMPONENTS | | | | | | |
|---|---|--|-----------------------|--|---|--|-----------------------------|--|------------------------------|--|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation – C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | populations of medicinal plant species, habitat fragmentation. | | | populations of sensitive plant species | plant rescue for medicinal populations, undertake surveys during suitable season for Red List plant species within footprint of proposed infrastructure. | | | | phase | commissioning costs. | | | | |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | Habitat destruction, loss of populations of threatened plant species, potential loss of populations of medicinal plant species, habitat fragmentation. | Level 5 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate development areas and keep all activities within, compile alien plant management plan, control dust, undertake plant rescue for medicinal populations, undertake surveys during suitable season for Red List plant species within footprint of proposed infrastructure. | C2 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Operating capital. | Bi-Annually. | Annual |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Habitat destruction, loss of populations of threatened plant species, potential loss of populations of medicinal plant species, habitat fragmentation. | Level 5 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate development areas and keep all activities within, compile alien plant management plan, control dust, undertake plant rescue for medicinal populations, undertake surveys during suitable season for Red List plant species within footprint of proposed infrastructure. | C2 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Habitat destruction, loss of populations of threatened plant species, potential loss of populations of medicinal plant species, habitat fragmentation. | Level 4Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate development areas and keep all activities within, compile alien plant management plan, control dust, undertake plant rescue for medicinal populations, undertake surveys during suitable season for Red List plant species within footprint of proposed infrastructure. | C3 | Level 4Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | Habitat destruction, loss of populations of threatened plant species, potential loss of populations of medicinal plant species, alien plant invasions, habitat fragmentation, habitat deterioration, change in physical abiotic conditions. | Level 4Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate development areas and keep all activities within, compile alien plant management plan, control dust, undertake plant rescue for medicinal populations, undertake surveys during suitable season for Red List plant species within footprint of proposed infrastructure. | C3 | Level 4Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | Habitat destruction, loss of populations of threatened plant species, potential loss of populations of medicinal plant species, alien plant invasions, habitat fragmentation, habitat deterioration, change in physical abiotic conditions. | Level 4Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate development areas and keep all activities within, compile alien plant management plan, control dust, undertake plant rescue for medicinal populations, undertake surveys during suitable season for Red List plant species within footprint of proposed infrastructure. | C3 | Level 4Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | Habitat destruction, loss of populations of threatened plant species, potential loss of populations of medicinal plant species, alien plant invasions, habitat fragmentation, habitat deterioration, change in physical abiotic conditions. | Level 4Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate development areas and keep all activities within, compile alien plant management plan, control dust, undertake plant rescue for medicinal populations, undertake surveys during suitable season for Red List plant species within footprint of proposed infrastructure. | C3 | Level 4Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | |
| Taking water from a water resource - Section 21 (a). | None | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | Habitat destruction, loss of populations of threatened plant species, potential loss of populations of medicinal plant species, habitat fragmentation, change in physical abiotic conditions. | Level 5 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species. | Demarcate development areas and keep all activities within, compile alien plant management plan, undertake plant rescue for medicinal populations, undertake surveys during suitable season for Red List plant species within footprint of proposed infrastructure. | C2 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | None | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | None | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | Habitat destruction, loss of populations of threatened plant species, potential loss of populations of medicinal plant species, habitat fragmentation, change in physical abiotic conditions. | Level 4Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate development areas and keep all activities within, compile alien plant management plan, undertake plant rescue for medicinal populations, undertake surveys during suitable season for Red List plant species within footprint of proposed infrastructure. | C2 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | None | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | | Exemptions from GNR 704 | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation. | Level 4Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate development areas and keep all activities within, compile alien plant management plan, undertake plant rescue for medicinal populations, undertake surveys during suitable season for Red List plant species within footprint of proposed infrastructure. | C3 | Level 4Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Opex | Project funds | Annual | Annual |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation. | Level 4Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive | Demarcate development areas and keep all activities within, compile alien plant management plan, undertake plant rescue for medicinal populations, undertake surveys during suitable | C3 | Level 4Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning | Opex | Project funds | Annual | Annual |

| CONSTRUCTION PHASE - Management Measures | | | | | | | | EMP COMPONENTS | | | | | | |
|---|---|--|------------------------------|---|--|---|------------------------------------|--|------------------------------|--|--------------------------|----------------------------|-------------------------|-------------------------------|
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | | | | plant species | season for Red List plant species within footprint of proposed infrastructure. | | | | | costs. | | | | |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation. | Level 4Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate development areas and keep all activities within, compile alien plant management plan, undertake plant rescue for medicinal populations, undertake surveys during suitable season for Red List plant species within footprint of proposed infrastructure. | C3 | Level 4Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Opex | Project funds | Annual | Annual |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation. | Level 4Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate development areas and keep all activities within, compile alien plant management plan, undertake plant rescue for medicinal populations, undertake surveys during suitable season for Red List plant species within footprint of proposed infrastructure. | C3 | Level 4Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Opex | Project funds | Annual | Annual |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | |
| None. | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | | MINE SHAFT AREAS | | | | | | |
| Construction and commissioning of the shaft complex at Shondoni. | Habitat destruction, loss of populations of threatened plant species, potential loss of populations of medicinal plant species, habitat fragmentation and deterioration and change in physical abiotic conditions. | Level 5 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Demarcate development areas and keep all activities within, control dust | C2 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Opex | Project funds | Annual | Annual |
| All other remaining operational shafts (Main Shaft, West Shaft and Ithembaletu Shaft) and decommissioned shafts (North Shaft and North-West Shaft). | Habitat destruction, loss of populations of threatened plant species, potential loss of populations of medicinal plant species, habitat fragmentation and deterioration and change in physical abiotic conditions. | Level 5 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Demarcate development areas and keep all activities within, control dust | C2 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Opex | Project funds | Annual | Annual |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | |
| None. | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | | CONVEYOR BELT ROUTE | | | | | | |
| Construction and commissioning of the conveyor | Habitat destruction | Level 4Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Demarcate development areas and keep all activities within, control dust | C3 | Level 4Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Opex | Project funds | Annual | Annual |
| Construction and commissioning of the conveyor | Loss of populations of threatened plant species | Level 4Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate development areas and keep all activities within, compile alien plant management plan, undertake surveys during suitable season for Red List plant species within footprint of proposed infrastructure. | C3 | Level 4Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Opex | Project funds | Annual | Annual |
| Construction and commissioning of the conveyor | Loss of populations of medicinal plant species | Level 5 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate development areas and keep all activities within, compile alien plant management plan, undertake plant rescue for medicinal populations, undertake surveys during suitable season for Red List plant species within footprint of proposed infrastructure. | C2 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Opex | Project funds | Annual | Annual |
| Construction and commissioning of the conveyor | Habitat fragmentation | Level 4Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate development areas and keep all activities within, compile alien plant management plan | C3 | Level 4Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Opex | Project funds | Annual | Annual |
| | | | | | | | | EMP COMPONENTS | | | | | | |
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Animal Life | | Animal Life | | | | | | Animal Life | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Habitat Loss, Habitat Fragmentation and the Potential Loss of Red Data List Fauna : The clearing of vegetation will lead to a loss of habitat, habitat fragmentation and the potential loss of Red Data List fauna due either to accidental deaths during construction or due to emigration from the disturbed area | Level 5 Risk | Medium | Prevent unnecessary vegetation loss and minimise the likelihood of loss of fauna | All construction areas should be fenced and construction activities should be limited to within the fenced areas. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | C2 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |

| CONSTRUCTION PHASE - Management Measures | | | | | | | | EMP COMPONENTS | | | | | | |
|---|---|--|-----------------------|--|--|--|-----------------------------|--|------------------------------|--|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation – C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Habitat Loss, Habitat Fragmentation and the Potential Loss of Red Data List Fauna : The clearing of vegetation will lead to a loss of habitat, habitat fragmentation and the potential loss of Red Data List fauna due either to accidental deaths during construction or due to emigration from the disturbed area | Level 5 Risk | Medium | Prevent unnecessary vegetation loss and minimise the likelihood of loss of fauna | All construction areas should be fenced and construction activities should be limited to within the fenced areas. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | C2 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | Habitat Loss, Habitat Fragmentation and the Potential Loss of Red Data List Fauna : The clearing of vegetation will lead to a loss of habitat, habitat fragmentation and the potential loss of Red Data List fauna due either to accidental deaths during construction or due to emigration from the disturbed area | Level 4Risk | Medium | Prevent unnecessary vegetation loss and minimise the likelihood of loss of fauna | All construction areas should be fenced and construction activities should be limited to within the fenced areas. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | C3 | Level 4Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | Habitat Loss, Habitat Fragmentation and the Potential Loss of Red Data List Fauna : The clearing of vegetation will lead to a loss of habitat, habitat fragmentation and the potential loss of Red Data List fauna due either to accidental deaths during construction or due to emigration from the disturbed area | Level 5 Risk | Medium | Prevent unnecessary vegetation loss and minimise the likelihood of loss of fauna | All construction areas should be fenced and construction activities should be limited to within the fenced areas. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | C2 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Habitat Loss, Habitat Fragmentation and the Potential Loss of Red Data List Fauna : The clearing of vegetation will lead to a loss of habitat, habitat fragmentation and the potential loss of Red Data List fauna due either to accidental deaths during construction or due to emigration from the disturbed area | Level 5 Risk | Medium | Prevent unnecessary vegetation loss and minimise the likelihood of loss of fauna | All construction areas should be fenced and construction activities should be limited to within the fenced areas. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | C2 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Habitat Loss, Habitat Fragmentation and the Potential Loss of Red Data List Fauna : The clearing of vegetation will lead to a loss of habitat, habitat fragmentation and the potential loss of Red Data List fauna due either to accidental deaths during construction or due to emigration from the disturbed area | Level 4Risk | Medium | Prevent unnecessary vegetation loss and minimise the likelihood of loss of fauna | All construction areas should be fenced and construction activities should be limited to within the fenced areas. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | C3 | Level 4Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | None | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Habitat Loss, Habitat Fragmentation and the Potential Loss of Red Data List Fauna : The clearing of vegetation will lead to a loss of habitat, habitat fragmentation and the potential loss of Red Data List fauna due either to accidental deaths during construction or due to emigration from the disturbed area | Level 5 Risk | Medium | Prevent unnecessary vegetation loss and minimise the likelihood of loss of fauna | All construction areas should be fenced and construction activities should be limited to within the fenced areas. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | C2 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Habitat Loss, Habitat Fragmentation and the Potential Loss of Red Data List Fauna : The clearing of vegetation will lead to a loss of habitat, habitat fragmentation and the potential loss of Red Data List fauna due either to accidental deaths during construction or due to emigration from the disturbed area | Level 4Risk | Medium | Prevent unnecessary vegetation loss and minimise the likelihood of loss of fauna | All construction areas should be fenced and construction activities should be limited to within the fenced areas. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | C3 | Level 4Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | Habitat Loss, Habitat Fragmentation and the Potential Loss of Red Data List Fauna : The clearing of vegetation will lead to a loss of habitat, habitat fragmentation and the potential loss of Red Data List fauna due either to accidental deaths during construction or due to emigration from the disturbed area | Level 5 Risk | Medium | Prevent unnecessary vegetation loss and minimise the likelihood of loss of fauna | All construction areas should be fenced and construction activities should be limited to within the fenced areas. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | C2 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | Habitat Loss, Habitat Fragmentation and the Potential Loss of Red Data List Fauna : The clearing of vegetation will lead to a loss of habitat, habitat fragmentation and the potential loss of Red Data List fauna due either to accidental deaths during construction or due to emigration from the disturbed area | Level 5 Risk | Medium | Prevent unnecessary vegetation loss and minimise the likelihood of loss of fauna | All construction areas should be fenced and construction activities should be limited to within the fenced areas. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the | C2 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |

| CONSTRUCTION PHASE - Management Measures | | | | | | | | EMP COMPONENTS | | | | | | |
|---|---|--|-----------------------|---|---|--|-----------------------------|--|------------------------------|--|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation – C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | Habitat Loss, Habitat Fragmentation and the Potential Loss of Red Data List Fauna : The clearing of vegetation will lead to a loss of habitat, habitat fragmentation and the potential loss of Red Data List fauna due either to accidental deaths during construction or due to emigration from the disturbed area | Level 5 Risk | Medium | Prevent unnecessary vegetation loss and minimise the likelihood of loss of fauna | appropriate relocation sites. All construction areas should be fenced and construction activities should be limited to within the fenced areas. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | C2 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | |
| Taking water from a water resource - Section 21 (a). | None | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | Habitat Loss, Habitat Fragmentation, Habitat Deterioration and the Potential Loss of Red Data List Fauna : The clearing of vegetation will lead to a loss of habitat, habitat fragmentation, a deterioration in the quality of the habitat due to changes in the vegetation and/or abiotic characteristics and the potential loss of Red Data List fauna due either to accidental deaths during construction or due to emigration from the disturbed area | Level 5 Risk | Medium | Prevent unnecessary vegetation loss, habitat disturbance and minimise the likelihood of loss of fauna | All construction areas should be fenced and construction activities should be limited to within the fenced areas. Any activities within the 1:100 year flood line or within wetland areas should be carefully controlled to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | C2 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | None | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | None | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | Habitat Loss, Habitat Fragmentation, Habitat Deterioration and the Potential Loss of Red Data List Fauna : The clearing of vegetation will lead to a loss of habitat, habitat fragmentation, a deterioration in the quality of the habitat due to changes in the vegetation and/or abiotic characteristics and the potential loss of Red Data List fauna due either to accidental deaths during construction or due to emigration from the disturbed area | Level 5 Risk | Medium | Prevent unnecessary vegetation loss, habitat disturbance and minimise the likelihood of loss of fauna | All construction areas should be fenced and construction activities should be limited to within the fenced areas. Any activities within the 1:100 year flood line or within wetland areas should be carefully controlled to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | C2 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | None | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | | Exemptions from GNR 704 | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | Habitat Loss, Habitat Fragmentation, Habitat Deterioration and the Potential Loss of Red Data List Fauna : The clearing of vegetation will lead to a loss of habitat, habitat fragmentation, a deterioration in the quality of the habitat due to changes in the vegetation and/or abiotic characteristics and the potential loss of Red Data List fauna due either to accidental deaths during construction or due to emigration from the disturbed area | Level 4 Risk | Medium | Prevent unnecessary vegetation loss, habitat disturbance and minimise the likelihood of loss of fauna | All construction areas should be fenced and construction activities should be limited to within the fenced areas. Any activities within the 1:100 year flood line or within wetland areas should be carefully controlled to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | C3 | Level 4 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | Habitat Loss, Habitat Fragmentation, Habitat Deterioration and the Potential Loss of Red Data List Fauna : The clearing of vegetation will lead to a loss of habitat, habitat fragmentation, a deterioration in the quality of the habitat due to changes in the vegetation and/or abiotic characteristics and the potential loss of Red Data List fauna due either to accidental deaths during construction or due to emigration from the disturbed area | Level 4 Risk | Medium | Prevent unnecessary vegetation loss, habitat disturbance and minimise the likelihood of loss of fauna | All construction areas should be fenced and construction activities should be limited to within the fenced areas. Any activities within the 1:100 year flood line or within wetland areas should be carefully controlled to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | C3 | Level 4 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| No person in control of a mine or | Habitat Loss, Habitat Fragmentation, Habitat | Level 4 | Medium | Prevent unnecessary | All construction areas should be fenced and construction | C3 | Level 4 Risk | Environment | During the | Part of mining | Capex | Project funds | Annual | Annual |

| CONSTRUCTION PHASE - Management Measures | | | | | | | | EMP COMPONENTS | | | | | | |
|---|--|---|-----------------------|---|---|--|-----------------------------|---|------------------------------|--|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | Deterioration and the Potential Loss of Red Data List Fauna : The clearing of vegetation will lead to a loss of habitat, habitat fragmentation, a deterioration in the quality of the habitat due to changes in the vegetation and/or abiotic characteristics and the potential loss of Red Data List fauna due either to accidental deaths during construction or due to emigration from the disturbed area | Risk | | vegetation loss, habitat disturbance and minimise the likelihood of loss of fauna | activities should be limited to within the fenced areas. Any activities within the 1:100 year flood line or within wetland areas should be carefully controlled to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | | | al Manager | operational phase | activity preparation - commissioning costs. | | | | |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | Habitat Loss, Habitat Fragmentation, Habitat Deterioration and the Potential Loss of Red Data List Fauna : The clearing of vegetation will lead to a loss of habitat, habitat fragmentation, a deterioration in the quality of the habitat due to changes in the vegetation and/or abiotic characteristics and the potential loss of Red Data List fauna due either to accidental deaths during construction or due to emigration from the disturbed area | Level 4 Risk | Medium | Prevent unnecessary vegetation loss, habitat disturbance and minimise the likelihood of loss of fauna | All construction areas should be fenced and construction activities should be limited to within the fenced areas. Any activities within the 1:100 year flood line or within wetland areas should be carefully controlled to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | C3 | Level 4 Risk | Environment al Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | |
| NEMWA Section 19(3) and GN 718. | None | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | | MINE SHAFT AREAS | | | | | | |
| Construction and commission of the Shondoni Shaft Complex and all associated infrastructure. | Habitat Loss: The clearing of vegetation will lead to a loss of available habitat for terrestrial fauna. Habitat Fragmentation: The construction of the access road will lead to a fragmentation of habitat. Loss of Red Data List Fauna: Construction activities may lead to the accidental or deliberate death of fauna and avifauna. Habitat Deterioration: Changes in both the vegetation and abiotic characteristics of the area can have a negative impact on habitat quality. | Level 4 Risk | Medium | Prevent unnecessary vegetation loss | All construction areas should be fenced and construction activities should be limited to within the fenced areas. Any activities within the 1:100 year flood line or within wetland areas should be carefully controlled to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. | C2 | Level 5 Risk | Environment al Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| All other remaining operational shafts (Main Shaft, West Shaft and Ithembaletu Shaft) and decommissioned shafts (North Shaft and North-West Shaft). | Habitat Loss: The clearing of vegetation will lead to a loss of available habitat for terrestrial fauna. Habitat Fragmentation: The construction of the access road will lead to a fragmentation of habitat. Loss of Red Data List Fauna: Construction activities may lead to the accidental or deliberate death of fauna and avifauna. Habitat Deterioration: Changes in both the vegetation and abiotic characteristics of the area can have a negative impact on habitat quality. | Level 4 Risk | Medium | Prevent habitat deterioration | All construction areas should be fenced and construction activities should be limited to within the fenced areas. Any activities within the 1:100 year flood line or within wetland areas should be carefully controlled to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. | C2 | Level 5 Risk | Environment al Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | |
| None | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | | CONVEYOR BELT ROUTE | | | | | | |
| Construction of the Conveyer Belt and fenced servitude between the Shondoni Shaft Complex and the Middelbult Main Shaft Conveyer | Habitat Fragmentation: The construction of the access road will lead to a fragmentation of habitat | Level 4 Risk | Medium | Prevent unnecessary vegetation loss and allow the movement of fauna across the conveyer belt servitude. | All construction areas should be fenced and construction activities should be limited to within the fenced areas. Materials used to fence the servitude should have a mesh hole diameter of at least 50 centimetres or should provide holes in the fence of a similar diameter at regular intervals - at least one entry point for each 500 metres of fencing (along both sides of the servitude). It is expected that the conveyor belt will be elevated off the ground, thereby allowing animals to pass under it. | C3 | Level 5 Risk | Environment al Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Construction of the Conveyer Belt and fenced servitude between the Shondoni Shaft Complex and the Middelbult Main Shaft Conveyer | Habitat Loss: The clearing of vegetation will lead to a loss of available habitat for terrestrial fauna | Level 4 Risk | Medium | Prevent unnecessary vegetation loss | All construction areas should be fenced and construction activities should be limited to within the fenced areas. | C3 | Level 4 Risk | Environment al Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Construction of the Conveyer Belt and fenced servitude between the Shondoni Shaft Complex and the Middelbult Main Shaft Conveyer | Loss of Red Data List Fauna: Construction activities may lead to the accidental or deliberate death of fauna and avifauna | Level 4 Risk | Medium | Prevent the unnecessary death of fauna | An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | C3 | Level 5 Risk | Environment al Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Construction of the Conveyer Belt and fenced servitude between the Shondoni Shaft Complex and the Middelbult Main Shaft Conveyer | Habitat Deterioration: Changes in both the vegetation and abiotic characteristics of the area can have a negative impact on habitat quality | Level 4 Risk | Medium | Prevent habitat deterioration | All construction areas should be fenced and construction activities should be limited to within the fenced areas. Any activities within the 1:100 year flood line or within wetland areas should be carefully controlled to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. | C3 | Level 4 Risk | Environment al Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |

| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|--|--|-----------------------|--|---|--|-----------------------------|--|------------------------------|--|-------------------|---------------------|------------------|------------------------|
| | | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Wetlands | | Wetlands | | | | | | Wetlands | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Construction will involve the clearing of vegetation as well as earth works (excavation, compaction, levelling etc.). Impacts resulting from these activities will include, loss of wetland habitat, increased sediment movement into adjacent wetlands, deterioration in water quality, and increased surface run-off that could lead to erosion. | Level 5 Risk | Low | Prevent loss of wetland habitat and minimise degradation of habitat. | Locate coal throw out stockpile outside the delineated wetland areas on site, with a minimum 50m buffer between the stockpile and the wetlands to allow space for implementation of mitigation measures during operational phase. Limit vegetation clearing to the actual footprint of the proposed stockpile. Fence off wetland areas prior to construction activities commencing to prevent access into the wetland areas by heavy machinery and vehicles. Undertake construction activities in winter to minimise sediment transport due to run-off after rainfall events. Re-vegetate all bare areas not directly within the footprint of the developments as soon as possible. | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Construction of the conveyor pedestal within the Trichardspruit floodplain wetland will result in some loss of wetland habitat, increased erosion risk within the wetland, increase in suspended solids and turbidity downstream of the construction site and an increase in alien and weedy species within the wetland. | Level 5 Risk | Moderate | Minimise erosion and sediment loss during construction process. | Undertake construction work during the dry season when the Trichardspruit is characterised by low flows. Locate the conveyor pedestal outside the active channel of the Trichardspruit. Locate all material stockpiles and constructors camps outside the wetland area. Limit activities to the width of the conveyor servitude to prevent injudicious driving within the wetland. Re-vegetate bare soil areas and landscape back to the natural wetland/river profile. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | Construction will involve the clearing of vegetation as well as earth works (excavation, compaction, levelling etc.). Impacts resulting from these activities will include, loss of wetland habitat, increased sediment movement into adjacent wetlands, deterioration in water quality, and increased surface run-off that could lead to erosion. | Level 4 Risk | Low | Prevent loss of wetland habitat and minimise degradation of habitat. | Locate dams outside the delineated wetland areas on site, with a minimum 50m buffer between the dams and the wetlands to allow space for implementation of mitigation measures during operational phase. Limit vegetation clearing to the actual footprint of the proposed dams Fence off wetland areas prior to construction activities commencing to prevent access into the wetland areas by heavy machinery and vehicles. Undertake construction activities in winter to minimise sediment transport due to run-off after rainfall events. Re-vegetate all bare soil areas not directly within the footprint of the developments as soon as possible. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | Construction of the conveyor pedestal within the Trichardspruit floodplain wetland will result in some loss of wetland habitat, increased erosion risk within the wetland, increase in suspended solids and turbidity downstream of the construction site and an increase in alien and weedy species within the wetland. | Level 5 Risk | Moderate | Minimise erosion and sediment loss during construction process. | Undertake construction work during the dry season when the Trichardspruit is characterised by low flows. Locate the conveyor pedestal outside the active channel of the Trichardspruit. Locate all material stockpiles and constructors camps outside the wetland area. Limit activities to the width of the conveyor servitude to prevent injudicious driving within the wetland. Re-vegetate bare soil areas and landscape back to the natural wetland/river profile. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Construction will involve the clearing of vegetation as well as earth works (excavation, compaction, levelling etc.). Impacts resulting from these activities will include, loss of wetland habitat, increased sediment movement into adjacent wetlands, deterioration in water quality, and increased surface run-off that could lead to erosion. | Level 4 Risk | Low | Prevent loss of wetland habitat and minimise degradation of habitat. | Locate tanks outside the delineated wetland areas on site, with a minimum 50m buffer between the tanks and the wetlands to allow space for implementation of mitigation measures during operational phase. Limit vegetation clearing to the actual footprint of the proposed tanks. Fence off wetland areas prior to construction activities commencing to prevent access into the wetland areas by heavy machinery and vehicles. Undertake construction activities in winter to minimise sediment transport due to run-off after rainfall events. Re-vegetate all bare soil areas not directly within the footprint of the developments as soon as possible. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Clearing of vegetation will result in a loss of wetland habitat | Level 4 Risk | High | Prevent loss of wetland vegetation | No wetland vegetation should be cleared as part of the vegetation clearing process. Wetlands should be fenced off to prevent access prior to starting the clearing of vegetation. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | Removal of water from the underground workings per se is not expected to have any impact on the wetlands of the area, as these wetlands are considered to be supported by surface water. However, release of this water into any water resource is likely to result in changes to the hydrology (flow volumes and velocities) of the receiving water resource, a change in water quality as well as an increased erosion risk. | Level 4 Risk | Low | Prevent release of water from the underground workings into any water resource | No water pumped out of the underground workings may be discharged into any water resource. A storage dam for water derived from the underground workings should be constructed on site to store this water. The water should be re-used as process water on the mine. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Construction will involve the clearing of vegetation as well as earth works (excavation, compaction, levelling etc.). Impacts resulting from these activities will include, loss of wetland habitat, increased sediment movement into adjacent wetlands, deterioration in water quality, and increased surface run-off that could lead to erosion. | Level 5 Risk | Low | Prevent loss of wetland habitat and minimise degradation of habitat. | Locate radio station outside the delineated wetland areas on site, with a minimum 50m buffer between the radio station and the wetlands to allow space for implementation of mitigation measures during operational phase. Limit vegetation clearing to the actual footprint of the proposed radio station. Fence off wetland areas prior to construction activities commencing to prevent access into the wetland areas by heavy machinery and vehicles. Undertake construction activities in winter to minimise sediment transport due to run-off after rainfall events. Re-vegetate all bare areas not directly within the footprint of the developments as soon as possible. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Construction of an Access Road | Construction will involve the clearing of vegetation | Level 4 | Low | Prevent loss of wetland | Locate road outside the delineated wetland areas as far as | C1 | Level 6 Risk | Environment | During the | Part of mining | Capex | Project funds | Annual | Annual |

| CONSTRUCTION PHASE - Management Measures | | | | | | | | EMP COMPONENTS | | | | | | |
|---|--|--|-----------------------|---|--|--|-----------------------------|--|------------------------------|--|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation – C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | as well as earth works (excavation, compaction, levelling etc.). Impacts resulting from these activities will include, loss of wetland habitat, increased sediment movement into adjacent wetlands, deterioration in water quality, and increased surface run-off that could lead to erosion. | Risk | | habitat and minimise degradation of habitat. | possible. Limit vegetation clearing to the actual footprint of the proposed road. Fence off wetland areas prior to construction activities commencing to prevent access into the wetland areas by heavy machinery and vehicles. Undertake construction activities in winter to minimise sediment transport due to run-off after rainfall events. Re-vegetate all bare areas not directly within the footprint of the developments as soon as possible. Where the access road needs to cross any wetlands, crossings should take place perpendicular to the direction of flow. No flow concentration should be allowed to take place and no impoundment upslope of the crossings. In this regard sufficient culverts should be placed along the full width of the wetland to ensure continued wetting of the entire wetness front. | | | al Manager | operational phase | activity preparation - commissioning costs. | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | Construction of the power line pylons and associated service road will result in some loss of wetland vegetation, increased erosion risk where construction takes place within wetland areas, as well as increased sediment movement into the wetlands. The power line will further pose a hazard to larger water birds found within the wetlands on site. | Level 4 Risk | | Prevent loss of wetland habitat and minimise degradation of habitat. | Power line pylons should be located outside delineated wetland areas. Service road should not cross wetlands - access should be from either side of the wetland and along existing roads as far as possible. Limit vegetation clearing to the actual footprint of the proposed road. Fence off wetland areas prior to construction activities commencing to prevent access into the wetland areas by heavy machinery and vehicles. Undertake construction activities in winter to minimise sediment transport due to run-off after rainfall events. Re-vegetate all bare areas not directly within the footprint of the developments as soon as possible. | C1 | Level 6 Risk | Environment al Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | Construction will involve the clearing of vegetation as well as earth works (excavation, compaction, levelling etc.). Impacts resulting from these activities will include, loss of wetland habitat, increased sediment movement into adjacent wetlands, deterioration in water quality, and increased surface run-off that could lead to erosion. | Level 4 Risk | Low | Prevent loss of wetland habitat and minimise degradation of habitat. | Ideally the conveyor route should follow paths of existing disturbance such as existing roads. Where the conveyor crosses wetlands, some wetland loss will be unavoidable. However, to minimise impacts, conveyor pedestals should be located outside the active channels of rivers; the conveyor should follow the landscape profile and now infilling or cuts should be allowed; conveyor crossings should not result in concentration of flows or significant changes to flood lines. Limit vegetation clearing to the actual footprint of the proposed stockpile. Fence off wetland areas prior to construction activities commencing to prevent access into the wetland areas by heavy machinery and vehicles. Undertake construction activities in winter to minimise sediment transport due to run-off after rainfall events. Re-vegetate all bare areas not directly within the footprint of the developments as soon as possible. | C1 | Level 6 Risk | Environment al Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | Construction will involve the clearing of vegetation as well as earth works (excavation, compaction, levelling etc.). Impacts resulting from these activities will include, loss of wetland habitat, increased sediment movement into adjacent wetlands, deterioration in water quality, and increased surface run-off that could lead to erosion. | Level 4 Risk | Low | Prevent loss of wetland habitat and minimise degradation of habitat. | Locate shaft area outside the delineated wetland areas on site, with a minimum 50m buffer between the shaft area and the wetlands to allow space for implementation of mitigation measures during operational phase. Limit vegetation clearing to the actual footprint of the proposed shaft area. Fence off wetland areas prior to construction activities commencing to prevent access into the wetland areas by heavy machinery and vehicles. Undertake construction activities in winter to minimise sediment transport due to run-off after rainfall events. Re-vegetate all bare areas not directly within the footprint of the developments as soon as possible. | C1 | Level 6 Risk | Environment al Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | |
| Taking water from a water resource - Section 21 (a). | Where water is taken from a groundwater source on site, no significant impact is expected to the wetlands. Where water is taken from a wetland, decreased flows within the affected wetland could result in a change in species composition of the biodiversity associated with that wetland. | Level 5 Risk | Low | Prevent abstraction of water from any wetlands on site. | No water abstraction should be allowed from any of the wetlands on site. Domestic water should be supplied by Rand Water, while process water should be derived from underground workings. No surface waters on site should be utilised as water sources for dust suppression, unless authorised by a water use licence. | C1 | Level 6 Risk | Environment al Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | Any activities that impede or impound flows within the wetlands on site could result in changes to the wetland hydrology, resulting in increased erosion risk where flow concentration has taken place, while extended saturation due to impoundment of flows could result in changes to species composition. | Level 4 Risk | Moderate | Prevent concentration of flows and increase in flow velocities downstream of crossings, and impoundment upslope of crossings. | No infrastructure should be located within the identified wetland areas on site, other than where the access road and conveyor route have to cross wetlands. Crossings should strive to maintain the predevelopment flows. This will require numerous culverts across the full width of wetlands in the case of the road crossing to prevent concentration and impoundment of flows. In terms of the conveyor, no conveyor footings should be located within the active channel of any water course. Post construction, the wetlands should be re-landscaped to the natural landscape profile and re-vegetated with indigenous species. | C1 | Level 6 Risk | Environment al Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | Deterioration in water quality as well as altered hydrology are likely to result from the discharge of water containing waste, resulting in changes to the species composition of aquatic fauna as sensitive taxa are lost, as well as increased sediment transport and erosion due to increased flows. | Level 4 Risk | Moderate | Prevent deterioration in water quality of the receiving water resource | Ideally no water containing waste should be discharged into any wetlands on site. Waste water should be treated and re-used on site. Should it become necessary to discharge any water, this water will have to comply with the applicable water quality standards. | C1 | Level 6 Risk | Environment al Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | Waste disposal could result in a deterioration of water quality. | Level 4 Risk | Moderate | Prevent deterioration in water quality of the adjacent water resource | Waste should be disposed of in registered waste disposal sites. No waste disposal should take place on site. Temporary storage of waste on site should take place within a banded area located within the dirty water area. | C1 | Level 6 Risk | Environment al Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |

| CONSTRUCTION PHASE - Management Measures | | | | | | | | EMP COMPONENTS | | | | | | |
|---|---|---|-----------------------|--|---|--|-----------------------------|---|------------------------------|--|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation – C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | Any activity altering the bed, banks or characteristics of a water resource could result in loss of wetland habitat, increased erosion risk and sediment transport, water quality deterioration (increase in suspended solids and turbidity) and an increase in alien vegetation due to disturbance. | Level 4 Risk | High | Minimise erosion and sediment loss during construction process. | With the exception of the wetland crossings associated with the access road and coal conveyor, no infrastructure should be located within the wetlands on site. Wetland crossings should not result in flow concentration or alterations to the flood lines of drainage lines and rivers. Construction should be undertaken during low flow periods. No conveyor footings should be located in the active channel of any rivers or streams. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | Removal of water from the underground workings per se is not expected to have any impact on the wetlands of the area, as these wetlands are considered to be supported by surface water. However, release of this water into any water resource is likely to result in changes to the hydrology (flow volumes and velocities) of the receiving water resource, a change in water quality as well as an increased erosion risk. | Level 4 Risk | Low | Prevent deterioration of water quality and changes to hydrology. | No discharge of water from underground in any water resources should take place. Water should be stored on site and used a process water during operation. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | | Exemptions from GNR 704 | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | Construction of any of the listed activities (residue deposit, dam, reservoir together with any associated structure or any other facility) within the 1:100 year flood line of any of the watercourses on site could result in loss of wetland habitat, increased sediment movement into adjacent wetlands, deterioration in water quality, and increased surface run-off that could lead to erosion. | Level 4 Risk | Low | Prevent loss of wetland habitat and minimise degradation of habitat. | Locate infrastructure outside the delineated wetland areas on site, with a minimum 50m buffer between the infrastructure and the wetlands to allow space for implementation of mitigation measures during operational phase. Limit vegetation clearing to the actual footprint of the proposed infrastructure. Fence off wetland areas prior to construction activities commencing to prevent access into the wetland areas by heavy machinery and vehicles. Undertake construction activities in winter to minimise sediment transport due to run-off after rainfall events. Re-vegetate all bare areas not directly within the footprint of the developments as soon as possible. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | Mining underneath the wetlands on site could result in collapse of the strata overlying the mine, resulting in surface subsidence. This could impact on the wetlands on site through the increased infiltration of surface water into groundwater, resulting in decreased flows within the wetlands and associated desiccation of the wetland habitat. New wetland areas could also be created where subsidence leads to the formation of depressions and inwardly draining areas within the landscape. This could further reduce flows within the wetlands as water is isolated from the main drainage lines. However, these impacts would only become apparent during the operational phase and post-closure phases. No impact is expected during the construction phase due to undermining of the wetlands. Construction of any infrastructure within the 1:50 year flood line of any of the watercourses on site could result in loss of wetland habitat, increased sediment movement into adjacent wetlands, deterioration in water quality, and increased surface run-off that could lead to erosion. | Level 4 Risk | Low | Prevent loss of wetland habitat and minimise degradation of habitat. | Locate infrastructure outside the delineated wetland areas on site, with a minimum 50m buffer between the infrastructure and the wetlands to allow space for implementation of mitigation measures during operational phase. Limit vegetation clearing to the actual footprint of the proposed infrastructure. Fence off wetland areas prior to construction activities commencing to prevent access into the wetland areas by heavy machinery and vehicles. Undertake construction activities in winter to minimise sediment transport due to run-off after rainfall events. Re-vegetate all bare areas not directly within the footprint of the developments as soon as possible. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:100 year flood line of any of the watercourses on site could result in loss of wetland habitat, increased sediment movement into adjacent wetlands, deterioration in water quality, and increased surface run-off that could lead to erosion. | Construction of any of the listed activities (sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource) within the 1:100 year flood line of any of the watercourses on site could result in loss of wetland habitat, increased sediment movement into adjacent wetlands, deterioration in water quality, and increased surface run-off that could lead to erosion. | Level 4 Risk | Low | Prevent loss of wetland habitat and minimise degradation of habitat. | Locate infrastructure outside the delineated wetland areas on site, with a minimum 50m buffer between the infrastructure and the wetlands to allow space for implementation of mitigation measures during operational phase. Limit vegetation clearing to the actual footprint of the proposed infrastructure. Fence off wetland areas prior to construction activities commencing to prevent access into the wetland areas by heavy machinery and vehicles. Undertake construction activities in winter to minimise sediment transport due to run-off after rainfall events. Re-vegetate all bare areas not directly within the footprint of the developments as soon as possible. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | Using residue or substances likely to cause pollution to construct any dam, impoundment, embankment, berm, road or railway etc. is likely to result in deterioration of water quality. | Level 4 Risk | Moderate | Prevent deterioration of water quality. | Ideally no pollution causing residue or substance should be used to construct any berms, dams, embankments etc, as per GN 704. Should this however have to be done, all infrastructure constructed from material that might cause pollution should be located within the dirty water area of the mine so that polluted water will be trapped in the pollution control dams. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | |
| NEMWA Section 19(3) and GN 718. | The construction of a sewage treatment facility will result in the clearing of vegetation and compaction and excavation of soils. This could result in a loss | Level 4 Risk | Low | Prevent loss of wetland habitat and minimise degradation of habitat. | Locate infrastructure outside the delineated wetland areas on site, with a minimum 50m buffer between the infrastructure and the wetlands to allow space for implementation of mitigation | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning | Capex | Project funds | Annual | Annual |

| CONSTRUCTION PHASE - Management Measures | | | | | | | | EMP COMPONENTS | | | | | | |
|---|--|--|-----------------------|--|--|--|-----------------------------|--|------------------------------|--|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation – C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| | of wetland habitat as well as deterioration of water quality through increased sediment transport into the wetlands. | | | | measures during operational phase. Limit vegetation clearing to the actual footprint of the proposed infrastructure. Fence off wetland areas prior to construction activities commencing to prevent access into the wetland areas by heavy machinery and vehicles. Undertake construction activities in winter to minimise sediment transport due to run-off after rainfall events. Re-vegetate all bare areas not directly within the footprint of the developments as soon as possible. | | | | | costs. | | | | |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | | MINE SHAFT AREAS | | | | | | |
| Construction of Shondoni shaft area. | Loss of wetlands will occur where the shaft area intrudes on the wetlands on site. Clearing of vegetation and earth works will result in increased surface run-off and increased sediment transport into the adjacent water resources, including wetlands. Disturbance to wetlands adjacent to the construction area could result in displacement of species and an increase in alien vegetation. Deterioration in water quality could result as a consequence of spillages of hazardous materials on site, as well as from run-off from materials stockpiles and littering. | Level 4 Risk | Low | Prevent loss of wetland habitat and minimise degradation of habitat. | Locate infrastructure outside the delineated wetland areas on site, with a minimum 50m buffer between the infrastructure and the wetlands to allow space for implementation of mitigation measures during operational phase. Limit vegetation clearing to the actual footprint of the proposed infrastructure. Fence off wetland areas prior to construction activities commencing to prevent access into the wetland areas by heavy machinery and vehicles. Undertake construction activities in winter to minimise sediment transport due to run-off after rainfall events. Re-vegetate all bare areas not directly within the footprint of the developments as soon as possible. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| All other remaining operational shafts (Main Shaft, West Shaft and Ithembaletu Shaft) and decommissioned shafts (North Shaft and North-West Shaft). | Loss of wetlands will occur where the shaft area intrudes on the wetlands on site. Clearing of vegetation and earth works will result in increased surface run-off and increased sediment transport into the adjacent water resources, including wetlands. Disturbance to wetlands adjacent to the construction area could result in displacement of species and an increase in alien vegetation. Deterioration in water quality could result as a consequence of spillages of hazardous materials on site, as well as from run-off from materials stockpiles and littering. | Level 4 Risk | Low | Prevent loss of wetland habitat and minimise degradation of habitat. | Locate infrastructure outside the delineated wetland areas on site, with a minimum 50m buffer between the infrastructure and the wetlands to allow space for implementation of mitigation measures during operational phase. Limit vegetation clearing to the actual footprint of the proposed infrastructure. Fence off wetland areas prior to construction activities commencing to prevent access into the wetland areas by heavy machinery and vehicles. Undertake construction activities in winter to minimise sediment transport due to run-off after rainfall events. Re-vegetate all bare areas not directly within the footprint of the developments as soon as possible. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | |
| Construction of the underground mine | During construction of the underground mine it is likely that groundwater will be pumped out of the workings. Release of this water could result in deteriorating water quality and altered flows within receiving water resources. | Level 4 Risk | Low | Prevent deterioration of water quality and changes to hydrology. | No discharge of water from underground in any water resources should take place. Water should be stored on site and used a process water during operation. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | | CONVEYOR BELT ROUTE | | | | | | |
| Construction of the conveyor belt | Loss of wetland habitat will occur within the direct footprint of the conveyor servitude | Level 4 Risk | High | Minimise loss and disturbance of wetland habitat | As the conveyor will need to cross several wetlands, some wetland loss is unavoidable. At river crossings, construction activities should be limited to the width of the conveyor servitude. No activities should take place within the active channel of any wetlands. All material stockpiles, construction camps and vehicle turning circles should be located outside the wetland areas. Construction activities should take place in winter. Construction activities should be limited to the actual footprint of the development. Bare soil areas should be landscaped to the natural landscape profile and re-vegetated immediately. Dust suppression measures should be implemented. Alien vegetation should be cleared from site with regular, long-term follow up by suitably trained staff. | C3 | Level 4 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Construction of the conveyor belt | Clearing of vegetation and earth works will result in increased surface run-off and increased sediment transport into the adjacent water resources, including wetlands. This will be especially significant on the approach and departure slopes to valley bottoms. | Level 4 Risk | Moderate | Minimise sediment movement off the site. | Construction activities should take place in winter. Construction activities should be limited to the actual footprint of the development. Bare soil areas should be landscaped to the natural landscape profile and re-vegetated immediately. Dust suppression measures should be implemented. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Construction of the conveyor belt | Increased erosion risks within the wetlands were conveyor pedestals are constructed within the wetlands (e.g. within the 1:10 year flood line of the Trichardspruit) due to disturbance of sediments and concentration of flows. | Level 4 Risk | Moderate | Prevent concentration of flows during normal flows and regular return storm events | No conveyor pedestals should be located within the active channel of any wetland on site. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Construction of the conveyor belt | Increased erosion risk on the approach and departure slopes to valley bottom and floodplain wetlands due to the preferential flow path provided by the service road adjacent to the conveyor route. | Level 4 Risk | Moderate | Minimise sediment movement off the site. | Construction activities should take place in winter. Construction activities should be limited to the actual footprint of the development. Bare soil areas should be landscaped to the natural landscape profile and re-vegetated immediately. Dust suppression measures should be implemented. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Construction of the conveyor belt | Habitat fragmentation will result as a consequence of the clearing of vegetation along the conveyor servitude and the setting up of fences. | Level 4 Risk | Moderate | Allow movement of small mammals underneath conveyor | The conveyor and associated fences should allow for the free movement of small mammals up to the size of a porcupine underneath the conveyor and through the fences. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |

| CONSTRUCTION PHASE - Management Measures | | | | | | | | EMP COMPONENTS | | | | | | |
|---|--|---|-----------------------|--|--|--|-----------------------------|---|------------------------------|--|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation – C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Aquatic Ecosystems | | Aquatic Ecosystems | | | | | | Aquatic Ecosystems | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Acidification and salinisation of surface and groundwater as a result of seepage/runoff | Level 3 Risk | Medium | Prevent seepage from stockpile | Ensure storm water from stockpiles is caught by dirty water retention dams. Ensure overburden stockpile is capped, appropriately sloped and re-vegetated so as to prevent pooling and erosion | 4 | Level 3 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Mobilisation of sediments, increased suspended solids and turbidity in watercourses and invasion by alien vegetation | Level 4 Risk | Low | Minimise sediment mobilisation/erosion | Conveyor footings to remain as far apart as possible across the watercourse. Construction must take place in dry season. Activities to be zoned so that only essential activities occur within 1:100 year flood lines. Sediment traps should be used to minimise sediments entering the watercourse. | 4 | Level 3 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | Contamination of surface water or groundwater as a result of overspill, seepage or structural failure of pollution dams | Level 5 Risk | Low | Prevent spills | Dam retaining walls should be regularly inspected for safety and capacity (which should cater for unforeseen high volumes). Overspill should be contained. | 3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | Mobilisation of sediments, increased suspended solids and turbidity at stream crossings | Level 4 Risk | Low | Minimise sediment mobilisation | Conveyor footings to remain as far apart as possible across the watercourse. Construction must take place in dry season. Activities to be zoned so that only essential activities occur within 1:100 year flood lines. Sediment traps should be used to minimise sediments entering the watercourse | 4 | Level 4 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Mobilisation of sediments, increased sediment loads in drainage lines | Level 6 Risk | Low | Minimise sediment mobilisation | Ensure sediments are trapped and prevented from entering watercourses | 3 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Mobilisation of sediments, increased sediment loads in drainage lines | Level 6 Risk | Low | Minimise sediment mobilisation | Ensure sediments are trapped and prevented from entering watercourses | 3 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | None during construction phase | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | None | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Mobilisation of sediments, increased sediment loads in drainage lines | Level 6 Risk | Low | Minimise sediment mobilisation | Ensure sediments are trapped and prevented from entering watercourses | 3 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | Mobilisation of sediments in drainage lines/stream crossings | Level 4 Risk | Low | Minimise sediment mobilisation | Pylon footings to remain out of 1:100 year flood lines. Activities to be zoned so that only essential activities occur within 1:100 year flood lines | 4 | Level 3 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | Mobilisation of sediments, increased suspended solids and turbidity at stream crossings | Level 4 Risk | Low | Minimise sediment mobilisation | Conveyor footings to remain out of 1:100 year flood lines as far as possible. Construction must take place in dry season. Activities to be zoned so that only essential activities occur within 1:100 year flood lines | 4 | Level 3 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | Mobilisation of sediments in drainage lines/stream crossings | Level 5 Risk | Low | Minimise sediment mobilisation | Ensure sediments are trapped and prevented from entering watercourses; Construction during dry season; Avoid construction activities within wetlands or riparian areas | 3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | |
| Taking water from a water resource - Section 21 (a). | Where water is taken from a groundwater source on site, no significant impact is expected to the wetlands. Where water is taken from streams, decreased flows within the affected stream could result in a change in species composition of the biodiversity associated with that watercourse. | Level 5 Risk | Low | Prevent abstraction of water from any surface water resource. | No water abstraction should be allowed from any of the wetlands on site. Domestic water should be supplied by Rand Water, while process water should be derived from underground workings. No surface waters on site should be utilised as water sources for dust suppression, unless authorised by a water use licence. | 0 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | Road, power line and conveyor crossings are likely to cause restricted flows during construction. This will result in erosion. Constrictions for extended periods may result in changes in habitat type and species composition, especially with regard to fish. | Level 4 Risk | Low | Avoid flow changes | Road/pipeline/conveyor crossings to avoid wetland areas as far as possible. Construction during dry season. Flow changes or restrictions to be kept to a minimum and completed as quickly as possible. | 2 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | Deterioration in water quality as well as altered hydrology are likely to result from the discharge of water containing waste, resulting in changes to the species composition of aquatic fauna as sensitive | Level 3 Risk | Moderate | Prevent deterioration in water quality of the receiving water resource | Ideally no water containing waste should be discharged into any wetlands on site. Waste water should be treated and re-used on site. Should it become necessary to discharge any water, this water will have to comply with the applicable water quality | 5 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |

| CONSTRUCTION PHASE - Management Measures | | | | | | | | EMP COMPONENTS | | | | | | |
|---|--|---|-----------------------|--|---|--|-----------------------------|---|------------------------------|--|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation – C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| | taxa are lost, as well as increased sediment transport and erosion due to increased flows. | | | | standards. | | | | | | | | | |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | Contamination of surface and groundwater | Level 3 Risk | Medium | Prevent seepage from stockpile | Ensure all dirty water is intercepted and that there is no mixing of clean and dirty water. Ensure settling ponds/pollution control dams are of sufficient capacity to be effective. Monitor water quality upstream and downstream of discharge points and ensure unacceptable peaks are addressed. | 4 | Level 3 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | Mobilisation of sediments, increased suspended solids and turbidity at stream crossings, Loss of wetland vegetation and habitat, invasion by alien vegetation. | Level 4 Risk | Low | Minimise sediment mobilisation | Conveyor footings to remain as far apart as possible across the watercourse. Construction must take place in dry season. Activities to be zoned so that only essential activities occur within 1:100 year flood lines. A buffer zone of 50 m should separate activities from the wetland boundary. Sediment traps should be used to minimise sediments entering the watercourse. Re-vegetate and rehabilitate after construction | 4 | Level 3 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | Removal of water from the underground workings per se is not expected to have any impact on the wetlands of the area, as these wetlands are considered to be supported by surface water. However, release of this water into any water resource is likely to result in changes to the hydrology (flow volumes and velocities) of the receiving water resource, a change in water quality as well as an increased erosion risk. | Level 3 Risk | Low | Prevent deterioration of water quality and changes to hydrology. | No discharge of water from underground in any water resources should take place. Water should be stored on site and used a process water during operation. | 3 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | | Exemptions from GNR 704 | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | Construction of any of the listed activities (residue deposit, dam, reservoir together with any associated structure or any other facility) within the 1:100 year flood line of any of the watercourses on site could result in loss of wetland habitat, increased sediment movement into adjacent wetlands, deterioration in water quality, and increased surface run-off that could lead to erosion. | Level 4 Risk | Low | Prevent loss of wetland habitat and minimise degradation of habitat. | Locate infrastructure outside the delineated wetland areas on site, with a minimum 50m buffer between the infrastructure and the wetlands to allow space for implementation of mitigation measures during operational phase. Limit vegetation clearing to the actual footprint of the proposed infrastructure. Fence off wetland areas prior to construction activities commencing to prevent access into the wetland areas by heavy machinery and vehicles. Undertake construction activities in winter to minimise sediment transport due to run-off after rainfall events. Re-vegetate all bare areas not directly within the footprint of the developments as soon as possible. | 4 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | Not applicable during construction. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | Contamination of surface water as a result of spills (e.g. hydrocarbons, cement, sewage), increased erosion, sediment movement into watercourses, increased surface runoff which may alter hydrology and exacerbate erosion. | Level 5 Risk | Low | Prevent spills and emergency preparedness | Spills should be prevented as far as possible (e.g. vehicle maintenance, oil traps, bunding, appropriate storage and disposal). An emergency preparedness plan should be prepared and should include a system of incident reporting that requires immediate follow-up action. Spill kits should be available and accessible to all construction staff at all times. Locate all infrastructure outside of wetland areas and minimise vegetation clearing to essential areas; ensure sediments are trapped before entering watercourses. | 3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | Contamination of surface water or groundwater as a result of spills of hazardous materials, overspill, seepage or structural failure of pollution dams | Level 5 Risk | Low | Prevent spills | Dam retaining walls should be regularly inspected for safety and capacity (which should cater for unforeseen high volumes). Overspill should be contained. | 3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | |
| NEMWA Section 19(3) and GN 718. | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | | MINE SHAFT AREAS | | | | | | |
| Construction and commissioning of the shaft complex at Shondoni | Mobilisation of sediments | Level 5 Risk | Low | Prevent erosion and increased sediment loads in watercourses | Cut-off trenches should minimise flow through the site and should be designed to prevent erosion at the outlets. All dirty water should be collected in retention dams that should be designed to accommodate major storm events during all stages of the development. All developments should be located outside the 1:100 year flood line. Water quality monitoring should detect peaks in suspended solids and turbidity and these should | 2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |

| CONSTRUCTION PHASE - Management Measures | | | | | | | | EMP COMPONENTS | | | | | | |
|---|---|---|-----------------------|--|--|--|-----------------------------|---|------------------------------|--|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| | | | | | be recorded as incidents and corrective action taken as soon as possible. Construction to take place during dry season. | | | | | | | | | |
| Construction and commissioning of the shaft complex at Shondoni | Contamination of surface water as a result of spills (e.g. hydrocarbons, cement, sewage) | Level 5 Risk | Low | Prevent spills and emergency preparedness | Spills should be prevented as far as possible (e.g. vehicle maintenance, oil traps, bunding, appropriate storage and disposal). An emergency preparedness plan should be prepared and should include a system of incident reporting that requires immediate follow-up action. Spill kits should be available and accessible to all construction staff at all times. | 3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Pollution control dams | Contamination of surface water or groundwater as a result of overspill, seepage or structural failure of pollution dams | Level 5 Risk | Low | Prevent spills | Dam retaining walls should be regularly inspected for safety and capacity (which should cater for unforeseen high volumes). Overspill should be contained. | 5 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Drainage/seepage from overburden stockpile | Acidification and salinisation of surface and groundwater | Level 3 Risk | Medium | Prevent seepage from stockpile | Ensure storm water from stockpiles is caught by dirty water retention dams. Ensure overburden stockpile is capped, appropriately sloped and re-vegetated so as to prevent pooling and erosion | 4 | Level 3 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | |
| N/A | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | | CONVEYOR BELT ROUTE | | | | | | |
| Construction of pedicels and conveyor tunnels/road crossings | Mobilisation of sediments, increased suspended solids and turbidity in streams and wetlands; invasion by alien vegetation | Level 4 Risk | Low | Minimise sediment mobilisation | Conveyor footings to remain out of 1:100 year flood lines as far as possible. Construction must take place in dry season. Activities to be zoned so that only essential activities occur within 1:100 year flood lines and a buffer zone is implemented between the wetland boundary and construction activities. Disturbed areas to be re-vegetated as soon as possible after construction. | 4 | Level 4 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Conveyor Route | Habitat fragmentation will result as a consequence of the clearing of vegetation along the conveyor servitude and the setting up of fences. | Level 4 Risk | Moderate | Allow movement of small mammals underneath conveyor | The conveyor and associated fences should allow for the free movement of small mammals up to the size of a porcupine underneath the conveyor and through the fences. | 7 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Construction of stream crossings | Constriction/diversion of flows at road/conveyor crossings | Level 4 Risk | Low | Avoid flow changes | Road/pipeline crossings to be limited to areas of low flows. Construction during dry season. Flow changes or restrictions to be kept to a minimum and completed as quickly as possible. | 2 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| | | | | | | | | EMP COMPONENTS | | | | | | |
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Air Quality | | Air Quality | | | | | | Air Quality | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Construction vehicles will create localised secondary fugitive dust and gaseous particles due to construction activities. | Level 5 Risk | LOW | To reduce localized dust and gaseous materials affecting working conditions during the construction phase. | Reduce dust by the appropriate level of dust suppression. Make use of construction vehicles that adhere to reduced gaseous emissions targets. | C3 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | Construction vehicles will create localised secondary fugitive dust and gaseous particles due to construction activities. | Level 5 Risk | LOW | To reduce localized dust and gaseous materials affecting working conditions during the construction phase. | Reduce dust by the appropriate level of dust suppression. Make use of construction vehicles that adhere to reduced gaseous emissions targets. | C3 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Bi-Annually. | Annual |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Construction vehicles will create localised secondary fugitive dust and gaseous particles due to construction activities. | Level 5 Risk | LOW | To reduce localized dust and gaseous materials affecting working conditions during the construction phase. | Reduce dust by the appropriate level of dust suppression. Make use of construction vehicles that adhere to reduced gaseous emissions targets. | C3 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Bi-Annually. | Annual |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Installation of a Tetra Radio System above ground at the Shaft Complex | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |

| CONSTRUCTION PHASE - Management Measures | | | | | | | | EMP COMPONENTS | | | | | | |
|---|---|--|-----------------------|--|---|--|-----------------------------|--|------------------------------|--|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation – C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Area - Activity 14. Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Construction vehicles will create localised secondary fugitive dust and gaseous particles due to construction activities. | Level 5 Risk | LOW | To reduce localized dust and gaseous materials affecting working conditions during the construction phase. | Reduce dust by the appropriate level of dust suppression. Make use of construction vehicles that adhere to reduced gaseous emissions targets. | C3 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Bi-Annually. | Annual |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | Construction vehicles will create localised secondary fugitive dust and gaseous particles due to construction activities. | Level 5 Risk | LOW | To reduce localized dust and gaseous materials affecting working conditions during the construction phase. | Reduce dust by the appropriate level of dust suppression. Make use of construction vehicles that adhere to reduced gaseous emissions targets. | C3 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Bi-Annually. | Annual |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | |
| Taking water from a water resource - Section 21 (a). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | | Exemptions from GNR 704 | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |

| CONSTRUCTION PHASE - Management Measures | | | | | | | | EMP COMPONENTS | | | | | | |
|--|--|---|-----------------------|--|---|--|-----------------------------|---|------------------------------|--|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | | | | | | | | | | | | | | |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | |
| N/A | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | | MINE SHAFT AREAS | | | | | | |
| Construction and commissioning of the shaft complex at Shondoni. | Construction vehicles will create localised secondary fugitive dust and gaseous particles due to construction activities. | Level 5 Risk | LOW | To reduce localized dust and gaseous materials affecting working conditions during the construction phase. | Reduce dust by the appropriate level of dust suppression. Make use of construction vehicles that adhere to reduced gaseous emissions targets. | C3 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Bi-Annually. | Annual |
| All other remaining operational shafts (Main Shaft, West Shaft and Ithembaletu Shaft) and decommissioned shafts (North Shaft and North-West Shaft). | Construction vehicles will create localised secondary fugitive dust and gaseous particles due to construction activities. | Level 5 Risk | LOW | To reduce localized dust and gaseous materials affecting working conditions during the construction phase. | Reduce dust by the appropriate level of dust suppression. Make use of construction vehicles that adhere to reduced gaseous emissions targets. | C3 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Bi-Annually. | Annual |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | |
| None. | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | | CONVEYOR BELT ROUTE | | | | | | |
| Construction and commissioning of the conveyor | Construction vehicles will create localised secondary fugitive dust and gaseous particles due to construction activities at the conveyor belt. | Level 5 Risk | LOW | To reduce localized dust and gaseous materials affecting working conditions during the construction phase. | Reduce dust by the appropriate level of dust suppression. Make use of construction vehicles that adhere to reduced gaseous emissions targets. | C3 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Bi-Annually. | Annual |
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
| Noise | | Noise | | | | | | Noise | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Localized Noise caused by construction activities. | Level 6 Risk | LOW | The low impact does not require any mitigation | None | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Localized Noise caused by construction activities. | Level 6 Risk | LOW | The low impact does not require any mitigation | None | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | Localized Noise caused by construction activities. | Level 6 Risk | LOW | The low impact does not require any mitigation | None | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | Localized Noise caused by construction activities. | Level 6 Risk | LOW | The low impact does not require any mitigation | None | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Localized Noise caused by construction activities. | Level 6 Risk | LOW | The low impact does not require any mitigation | None | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Localized Noise caused by construction activities. | Level 6 Risk | LOW | The low impact does not require any mitigation | None | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | Localized Noise caused by construction activities. | Level 6 Risk | LOW | The low impact does not require any mitigation | None | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Localized Noise caused by construction activities. | Level 6 Risk | LOW | The low impact does not require any mitigation | None | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Localized Noise caused by construction activities. | Level 6 Risk | LOW | The low impact does not require any mitigation | None | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |

| CONSTRUCTION PHASE - Management Measures | | | | | | | | EMP COMPONENTS | | | | | | |
|---|--|--|-----------------------|--|-----------------------------|--|-----------------------------|--|------------------------------|--|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation – C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | Localized Noise caused by construction activities. | Level 6 Risk | LOW | The low impact does not require any mitigation | None | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | Localized Noise caused by construction activities. | Level 6 Risk | LOW | The low impact does not require any mitigation | None | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | Localized Noise caused by construction activities. | Level 6 Risk | LOW | The low impact does not require any mitigation | None | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | |
| Taking water from a water resource - Section 21 (a). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | | Exemptions from GNR 704 | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |

| CONSTRUCTION PHASE - Management Measures | | | | | | | | EMP COMPONENTS | | | | | | |
|---|---|---|-----------------------|--|-----------------------------|--|-----------------------------|---|------------------------------|--|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| pollution of a water resource - Regulation 5. | | | | | | | | | | | | | | |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | |
| NEMWA Section 19(3) and GN 718. | | N/A | | | | | | | | | | | | |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | | MINE SHAFT AREAS | | | | | | |
| Blasting at surface during shaft construction | Airblast noise | Level 6 Risk | LOW | Minimise noise by blasting in afternoon when skyward diffraction of sound results in lower noise levels at large distances | | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| All other remaining operational shafts (Main Shaft, West Shaft and Ithembalethu Shaft) and decommissioned shafts (North Shaft and North-West Shaft). | Operating shafts with no blasting activities, no reportable impact. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | |
| N/A | | ~ | | | | | | ~ | | | | | | |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | | CONVEYOR BELT ROUTE | | | | | | |
| Conveyor construction | Foundation digging and erection of steel construction noise | Level 6 Risk | LOW | No mitigation required | | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
| Visuals | | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |

| CONSTRUCTION PHASE - Management Measures | | | | | | | | EMP COMPONENTS | | | | | | |
|---|-----------------------------------|---|-----------------------|----------------------------------|-----------------------------|--|-----------------------------|---|---------------|----------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation – C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Activity 1 (l). Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | |
| Taking water from a water resource - Section 21 (a). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | | Exemptions from GNR 704 | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | |
| | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | | MINE SHAFT AREAS | | | | | | |

| CONSTRUCTION PHASE - Management Measures | | | | | | | | EMP COMPONENTS | | | | | | |
|---|---|--|-----------------------|--|---|--|-----------------------------|--|-------------------------------|--|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Clearing of Vegetation | Highly visible from R547; has impact on short to medium range views on road users | Level 6 Risk | High | Reduce visual impact of clearing of vegetation | Clearing of smallest possible area | C1 | Level 6 Risk | Environmental Manager | During the Construction phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| | Alterations to Landscape and Visual Character (Vegetation & Landcover) | Level 6 Risk | High | Reduce visual impact of clearing of vegetation | Clearing of smallest possible area | C1 | Level 6 Risk | Environmental Manager | During the Construction phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| | Alterations to Landscape and Visual Character (Hydrology) | Level 6 Risk | High | Reduce visual impact of clearing of vegetation | Clearing of smallest possible area | C1 | Level 6 Risk | Environmental Manager | During the Construction phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Construction Activities | Highly visible from R547; has impact on short to medium range views on road users | Level 6 Risk | High | Reduce short range visibility of construction activities | Planting of trees to use for screening purposes | C1 | Level 6 Risk | Environmental Manager | During the Construction phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| | Visibility impact for long range views from east | Level 6 Risk | High | None Available | None Available | C1 | Level 6 Risk | Environmental Manager | During the Construction phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| | Alterations to Landscape and Visual Character (Morphology & Topography) | Level 6 Risk | High | Reduce contrast to surrounding environment | Use natural tones that blend in with environment when constructing shaft facilities | C1 | Level 6 Risk | Environmental Manager | During the Construction phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | |
| None. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | | CONVEYOR BELT ROUTE | | | | | | |
| Clearing of Vegetation | Highly visible from R547; has impact on short to medium range views on road users and Brendan Village residents | Level 6 Risk | High | Reduce visual impact of clearing of vegetation | Clearing of smallest possible area | C1 | Level 6 Risk | Environmental Manager | During the Construction phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| | Alterations to Landscape and Visual Character (Vegetation & Landcover) | Level 6 Risk | High | Reduce visual impact of clearing of vegetation | Clearing of smallest possible area | C1 | Level 6 Risk | Environmental Manager | During the Construction phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| | Alterations to Landscape and Visual Character (Hydrology) | Level 6 Risk | High | Reduce visual impact of clearing of vegetation | Clearing of smallest possible area | C1 | Level 6 Risk | Environmental Manager | During the Construction phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Construction Activities | Highly visible from R547 and Brendan Village; has impact on short to medium range views on road users and residents | Level 6 Risk | High | Reduce short range visibility of construction activities | Planting of trees to use for screening purposes | C1 | Level 6 Risk | Environmental Manager | During the Construction phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| | Visibility Impact on road users at road-crossings | Level 6 Risk | Low | Reduce short range visibility of conveyor route | Take conveyor belt underneath road to make it less visible | C1 | Level 6 Risk | Environmental Manager | During the Construction phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| | Visibility impact for long range views | Level 6 Risk | High | None Available | None Available | C1 | Level 6 Risk | Environmental Manager | During the Construction phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| | Alterations to Landscape and Visual Character (Morphology & Topography) | Level 6 Risk | High | None Available | None Available | C1 | Level 6 Risk | Environmental Manager | During the Construction phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| | Visual Exposure impact for road users of R547 as well as Brendan Village residents | Level 6 Risk | High | None Available | None Available | C1 | Level 6 Risk | Environmental Manager | During the Construction phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| Heritage | | Heritage | | | | | | Heritage | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |

| CONSTRUCTION PHASE - Management Measures | | | | | | | | EMP COMPONENTS | | | | | | |
|--|-----------------------------------|--|-----------------------|----------------------------------|-----------------------------|--|-----------------------------|--|---------------|----------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation – C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | | | | | | | | | | | | | | |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | |
| Taking water from a water resource - Section 21 (a). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | | Exemptions from GNR 704 | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |

| CONSTRUCTION PHASE - Management Measures | | | | | | | | EMP COMPONENTS | | | | | | |
|--|---|---|-----------------------|---|--|--|-----------------------------|---|------------------------------|--|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | | | | | | | | | | | | | | |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | |
| | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | | MINE SHAFT AREAS | | | | | | |
| Construction and commissioning of the shaft complex at Shondoni. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| All other remaining operational shafts (Main Shaft, West Shaft and Ithembaletu Shaft) and decommissioned shafts (North Shaft and North-West Shaft). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | |
| None. | N/A | | | | | | | | | | | | | |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | | CONVEYOR BELT ROUTE | | | | | | |
| Construction and commissioning of the conveyor belt. | Construction activities affecting sites CEO2 (cattle kraal) and FC02 (buildings). | Level 6 Risk | Medium | Prevent the loss of physical data about historical buildings. | Document historical buildings by means of plan drawings, photographs and descriptions. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Bi-Annually. | Annual |
| Construction and commissioning of the conveyor belt. | Construction activities affecting sites GY15, GY16, GY17 and GY 18 (all graves). | Level 6 Risk | Medium | Handling the relocation of graves in a sensitive way. | Exhume and relocate graves. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Bi-Annually. | Annual |
| | | | | | | | | EMP COMPONENTS | | | | | | |
| | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Socio-Economic | | Socio-Economic | | | | | | Socio-Economic | | | | | | |
| Please refer to Sasol Shondoni Social and Labour Plan | | Please refer to Sasol Shondoni Social and Labour Plan | | | | | | Please refer to Sasol Shondoni Social and Labour Plan | | | | | | |

7.3.3 Operational Phase Management Measure Tables

| OPERATIONAL PHASE - Management Measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|--|---|-----------------------|----------------------------------|-----------------------------|--|-----------------------------|--------------------|---|----------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Topography | | Topography | | | | | | | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | As discussed for the Construction Phase. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | As discussed for the Construction Phase. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | |
| Taking water from a water resource - Section 21 (a). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | | | Exemptions from GNR 704 | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |

| OPERATIONAL PHASE - Management Measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | | |
|---|---|---|-----------------------|--|--|--|---|-----------------------|------------------------------|-----------------------|-------------------|---------------------|------------------|------------------------|---|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment | |
| underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | | | | | | | | | | | | | | | |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | | | |
| NEMWA Section 19(3) and GN 718. | | | | | | | | | | | | | | | |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | MINE SHAFT AREAS | | | | | | | | |
| | | | | | | | | | | | | | | | |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | | | |
| Increased extraction of the No. 4 Coal seam. | Increased extraction of pillars on the No.4 Coal seam will lead to roof and overburden collapse that might reach surface. This will lead to surface and sub-surface subsidence. | Level 5 Risk | HIGH | Avoid unstable rock-mechanical areas where surface subsidence is likely to take place. | If surface subsidence take place, rehabilitate the surface area to pre-mining topographical conditions, as per the Sasol Mining Standard Operating Procedure for subsidence. | | Level 6 | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | CONVEYOR BELT ROUTE | | | | | | | | |
| Operation of the conveyor | N/A | | | | | | | | | | | | | | |
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment | |
| Soils and Land Capability | | Soils and Land Capability | | | | | Soils and Land Capability | | | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Contamination of soil footprint by RoM Product, and loss of soil utilization | Level 4 Risk | Medium | Prevent contamination of resource and minimise area of impact | Keep area as small as possible and maintain storm water controls and barrier layer | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Contamination of soil footprint by RoM Product and Hydrocarbon spills, and loss of soil utilization | Level 4 Risk | Medium | Prevent contamination of resource and minimise area of impact | Keep area as small as possible and maintain storm water controls and barrier layer | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | Contamination of subsoils by dirty water seepage, and loss of utilization of the resource | Level 3 Risk | Medium | Prevent contamination of resource and minimise area of impact | Keep area as small as possible and maintain storm water controls and barrier layer - Dam Seal | C3 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | None - Completed during construction phase - No added impacts | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Possible contamination of soil footprint outside of bunded area. Loss of soil utilization | Level 5 Risk | High | Keep soils from being Contaminated | Bunding of Fuel Tanks and management of fuel filling procedures - Housekeeping issue | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Loss of soil and land utilization if this is ongoing into the operational phase. | Level 5 Risk | Medium | Protection of Resource | Storage of soil with vegetation | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | Potential ongoing impact on soil moisture and loss of land utilization | Level 5 Risk | Medium | Protection of Resource | Removal and storage of Utilizable soil | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Completed in Construction Phase - No additional impacts of consequence other than the loss of the soil resource and utilization potential | Level 5 Risk | Low | Save stored resource | Minimise area of impact and save stored resource | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from | Loss of soil resource and utilization potential and possible contamination by product and | Level 3 Risk | Medium | Keep spillage to minimum | Clean up spills immediately and maintain equipment and vehicles | C2 | Level 6 Risk | Environmental Manager | During the operational | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |

| OPERATIONAL PHASE - Management Measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|---|---|-----------------------|---|--|--|---|-----------------------|------------------------------|-----------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Tar road R547 - Activity 15. | | | | | | | | | phase | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (j). | Ongoing loss of soil resource and utilization potential due to service road | Level 4 Risk | Medium to High | Reduce area of impact and maintain soil storage erosion and compaction of service road and stockpiles | Routine maintenance and vegetative cover control - monthly house keeping | C2 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | On-going loss of soil resource and utilization potential and possible contamination by product and hydrocarbon spills | Level 3 Risk | Medium | Keep spillage to minimum | Clean up spills immediately and maintain equipment and vehicles | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | Loss of soil resource and utilization potential and possible contamination by product and hydrocarbon spills | Level 3 Risk | Medium | Protection of Resource | Removal and storage of Utilizable soil | C3 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | | |
| Taking water from a water resource - Section 21 (a). | The on-going reduction in water resources will potentially reduce the irrigation potential and render the land capability less productive due to lowering of soil moisture content. | Level 4 Risk | High | Retain Soil Moisture | Augment Water Supplies | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | Diversion of water from its present course could affect the land capability in terms of productivity due to reduction in soil moisture content | Level 5 Risk | High | Retain Soil Moisture | Augment Water Supplies | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | Discharge of waste to unprotected soils will render them less useable. The loss of this resource could potentially be permanent if not managed. | Level 5 Risk | High | Protect soil Quality | Line all channels | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | N/A to soils directly. However, the contamination of the water resource would ultimately impact on soils that are irrigated or over which they flow if not protected. | Level 5 Risk | High | Protect soil Quality | Line all channels | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | Diversion of water courses or rivers will impact the soils over which the water is engineered to flow. These soils will be lost from the system and potentially be contaminated or impacted by poor quality water | Level 5 Risk | High | Retain Soil Moisture | Augment Water Supplies | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | Taking of water from the earth's system will alter the soil moisture dynamics which will in turn affect the biosphere and ecology of the area that is dependent on and adapted to the present biological balance. | Level 4 Risk | High | Retain Soil Moisture | Augment Water Supplies | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | Exemptions from GNR 704 | | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |

| OPERATIONAL PHASE - Management Measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | | |
|---|---|---|-----------------------|---|--|--|---|-----------------------|------------------------------|-----------------------|-------------------|---------------------|------------------|------------------------|---|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment | |
| dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | | | | | | | | | | | | | | | |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | | | |
| NEMWA Section 19(3) and GN 718. | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | MINE SHAFT AREAS | | | | | | | | |
| On-going mining - haulage of raw product to surface and beneficiation | Continued loss of soil resource and utilization potential, plus possible contamination of footprint soils. | Level 5 Risk | Moderate | Prevent Loss of and Contamination to the resource | Maintain surface water controls, dust suppression and control spillage, and maintain storage facilities | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| Possible contamination of footprint soils and stored berm materials by dirty water in area of shaft workings | Continued loss of soil resource and utilization potential, plus possible contamination of footprint soils. | Level 4 Risk | Moderate | Prevent Loss of and Contamination to the resource | Maintain surface water controls, dust suppression and control spillage, and maintain storage facilities | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| Compaction of in-situ footprint and stored material, plus erosion of unprotected areas and storage facilities. | Continued loss of soil resource and utilization potential | Level 6 Risk | Moderate | Prevent loss of resource | Maintain surface water controls, and movement of vehicles | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| Vehicle impacts | Loss of resource by dust emissions | Level 6 Risk | Moderate | Prevent Loss of the resource | Maintain surface water controls, dust suppression and control spillage | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| All other remaining operational shafts (Main Shaft, West Shaft and Ithembaletu Shaft) and decommissioned shafts (North Shaft and North-West Shaft). | Continued loss of soil resource and utilization potential, plus possible contamination of footprint soils. | Level 5 Risk | Moderate | Prevent Loss of and Contamination to the resource | Maintain surface water controls, dust suppression and control spillage, and maintain storage facilities | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | | | |
| Ongoing operation of shafts, access roads and haulage ways | Continued loss of soil resource with possibility of contamination by operational activities - Rom product and vehicle impacts - Hydrocarbons, compaction and/or erosion | Level 5 Risk | Medium | Prevent contamination and loss of resource | Restrict area of impact and manage spillage of product and hydrocarbons | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| Potential for contamination of stored soils from adit declines and shafts operations - water, by product and hydrocarbons from operation vehicles | The continued loss of resource and utilization potential due to operation of mining infrastructure and storage of product (RoM) and natural materials | Level 5 Risk | Medium | Prevent contamination and loss of resource | Restrict area of impact and manage spillage of product and hydrocarbons | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | CONVEYOR BELT ROUTE | | | | | | | | |
| Operation of haulage facility | Ongoing loss of resource and soil utilization potential, and the potential for contamination by spillage of product and hydrocarbons | Level 3 Risk | Medium | Protection of Resource | Removal and storage of Utilizable soil | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| OPERATIONAL PHASE - Management Measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | | |
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment | |
| Ground Water | | Ground Water | | | | | Ground Water | | | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | The operation of a 15 000t ROM coal stockpile area at Shondoni Shaft. Seepage from the stockpile area can lead to ground water pollution, if not managed correctly. | Level 6 Risk | LOW | To prevent the seepage of contaminated water from the ROM stockpile entering the underlying aquifer units. | The ROM stockpile must be operated on a lined surface. Any surface water run-off will be captured and handled as dirty water in the Surface Water Dam. | C3 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Conveyor Pedestal will not intersect ground water, so no impact will take place. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | The operation of a Storm Water Pollution Control Dam (SWPCD) that can lead to a deterioration of ground water quality directly beneath the facility. | Level 5 Risk | MEDIUM | To prevent the seepage of contaminated water from the Storm Water Pollution Control Dam (SWPCD) entering the underlying aquifer units. | Prevent seepages and spillages of polluted water from the SWPCD by implementing the appropriate lining system. Excess run-off from the facility must be captured and managed as part of the operational phase water balance. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | Conveyor Pedestal will not intersect ground water, so no impact will take place. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | The storage of diesel fuel in storage tanks can lead to ground water pollution due to spillages/leaks. | Level 5 Risk | HIGH | Ensure that diesel tanks are placed in industry-standard bunkers with the appropriate lining systems to prevent the leakage of any diesel spill away from the bunker. | All spillages must be captured inside the bunded areas before any spillage to the surrounding environment takes place. Suitably qualified personnel will be responsible for the clean-up of any diesel spills of any size and nature (Hazmat). | C3 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 | Any water removed from the No.4 Coal seam will be deemed polluted and stored in other | Level 5 Risk | LOW | Minimise the volumes of water to be pumped to | Optimise storage space in old underground units to prevent the need to pump water from underground mine workings to the | C3 | Level 5 Risk | Environmental Manager | During the operational | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |

| OPERATIONAL PHASE - Management Measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|--|--|-----------------------|---|---|--|-----------------------------|--|------------------------------|-----------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | sections of mined out areas, or pumped to surface to the Storm Water Pollution Control Dam (SWPCD). | | | surface to the Storm Water Pollution Control Dam (SWPCD). | Storm Water Pollution Control Dam (SWPCD). | | | | phase | | | | | |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (i). | The operation of the Overhead Power line will not intersect ground water, so no impact will take place. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | The operation of a coal conveyor belt will not intersect ground water, so no impact will take place. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | This activity only refers to surface disturbance. Since no ground water is intersected, no impact will take place. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | |
| Taking water from a water resource - Section 21 (a). | All underground water accruing in mining sections during the operational phase will be stored in mined-out underground mine workings (storage reservoirs). This component will only be triggered if any water is pumped to surface. No 21(a) application is required at this stage. If and when this happens, an amendment to the WULA will be done. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | Ground water seepage captured from the ROM stockpile (maximum 2000m ³ /a) at Shondoni Shaft Complex will be pumped to the Storm Water Pollution Control Dam (SWPCD). | Level 4 Risk | LOW | To prevent the seepage of contaminated water from the ROM Stockpiles entering the underlying aquifer units. | Pump excess ground water seepage to the Storm Water Pollution Control Dam (SWPCD). | C2 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | Any water removed from the No.2 and No.4 Coal seam will be deemed polluted and stored in other sections of mined out areas. A detailed mine optimisation plan has been designed to create the necessary storage of water in mined out areas for the total Life of Mine. | Level 3 Risk | MEDIUM | 1.Minimise the volumes of water to be pumped to the Storm Water Pollution Control Dam (SWPCD). 2. Optimise underground storage reservoirs to ensure safe and responsible mining during the LOM. | Manage the operational phase water balance responsibly to reduce water make and optimise underground storage space available. | C3 | Level 4 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | | Exemptions from GNR 704 | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |

| OPERATIONAL PHASE - Management Measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|---|---|-----------------------|--|--|--|-----------------------------|---|------------------------------|-----------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | |
| NEMWA Section 19(3) and GN 718. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | | MINE SHAFT AREAS | | | | | | |
| Operating the shaft complex at Shondoni for the Life of Mine. | Depletion in ground water availability and deterioration of ground water quality in the Shaft as a result of ground water seepage during the operational phase of the shaft complex. The shaft complex will be sealed/grouted, so little to no impact will take place. | Level 6 Risk | LOW | Prevent influx of ground water into the shaft complex | Grout/seal influx zones and pump seepage water to the Storm Water Pollution Control Dam (SWPCD). | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| All other remaining operational shafts (Main Shaft, West Shaft and Ithembalethu Shaft) and decommissioned shafts (North Shaft and North-West Shaft). | Depletion in ground water availability and deterioration of ground water quality in the Shaft as a result of ground water seepage during the operational phase of the shaft complex. The shaft complex will be sealed/grouted, so little to no impact will take place. | Level 6 Risk | LOW | Prevent influx of ground water into the shaft complex | Grout/seal influx zones and pump seepage water to the Storm Water Pollution Control Dam (SWPCD). | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | |
| The influx of groundwater recharge into mine workings due to bord and pillar mining of the No's 2 and 4 coal seam. | Ground water recharge from surface will enter areas of bord and pillar mining due to the fact that mining will create an increasing void. | Level 4 Risk | LOW | Manage the influx of normal ground water recharge as part of the operational phase water balance. | Manage the operational phase water balance responsibly to reduce water make and optimise underground storage space available. | C3 | Level 4 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| The increased influx of groundwater into mine workings due to pillar extraction activities of the No.4 coal seam. | An increased ground water recharge from surface will take place due to sub-surface subsidence on the No.4 coal seam. | Level 4 Risk | HIGH | Manage the influx of additional ground water make due to pillar extraction activities. | Manage the operational phase water balance responsibly to reduce water make and optimise underground storage space available. | C3 | Level 4 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Inter-mine and inter-section flow of ground water during the operational phase. | Ground water resources stored in underground mining units can migrate from one mine/section to an adjacent mine/section, due to a difference in hydraulic pressure. Flow can also be induced where flooding compartments decant into surrounding compartments due to a roll in the coal seam floor. | Level 5 Risk | LOW | Calculate and allocate low-lying reservoirs for underground water storage. | Measure water levels in reservoirs to ensure that no unit is over-utilized. Move between storage compartments (reservoirs) before inter-mine or inter-section flow takes place. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Depletion of external users' groundwater resources and fountains due to bord and pillar mining activities of the No's 2 and 4 coal seams. | Bord and pillar mining activities can intersect external user's boreholes directly and can lead to a reduction/complete depletion of external user's borehole yields. | Level 6 Risk | LOW | Monitor all external user's boreholes for 1) yield and 2) quality deterioration, based on a structured monitoring protocol. | Supply external users with supplementary water in the cases where a mining-related impact can be proven. | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Depletion of external users' groundwater resources and fountains due to pillar extraction mining activities of the No. 4 coal seam. | Pillar extraction mining activities can lead to sub-surface subsidence, that in turn will lead to a reduction/complete depletion of external user's borehole yields. | Level 5 Risk | HIGH | Monitor all external user's boreholes for 1) yield and 2) quality deterioration, based on a structured monitoring protocol. | Supply external users with supplementary water in the cases where a mining-related impact can be proven. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Depletion of stream base flow due to sub-surface subsidence of the No.4 coal seam. | Pillar extraction mining activities can lead to sub-surface subsidence, that in turn will lead to a reduction/complete depletion of ground water base flow to rivers and non-perennial streams. | Level 3 Risk | HIGH | Avoid pillar extraction activities below surface streams or obtain rock-mechanical evidence that no surface subsidence will take place. | In the event that surface water streams or non-perennial streams is intersected by surface subsidence, rehabilitate the stream as soon as possible, to prevent further ingress of surface water to underground mining units. | C4 | Level 4 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Deterioration in groundwater quality in all underground sections, and migration into the receiving environment. | Ground water recharge to underground mining units that remains in reservoirs will come in contact with coal pillars, mine floors and roofs. A gradual deterioration in ground water quality will take place over time, depending amongst other things, residence times, natural buffer capacity and mixing ratios of ground water from different sources. | Level 3 Risk | HIGH | The deterioration of ground water in underground units is a given. The migration of polluted ground water will be avoided by managing the water in underground storage compartments. | Monitor underground ground water qualities on a quarterly basis. Prevent the mixing of poor and good quality water in the same reservoir - rather keep in separate reservoirs. | C4 | Level 4 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Groundwater pollution originating from the ROM coal stock pile at the Shondoni Shaft Complex. | The operation of a 15 000t ROM coal stockpile area at Shondoni Shaft. Seepage from the stockpile area can lead to ground water pollution, if not managed correctly. | Level 4 Risk | LOW | To prevent the seepage of contaminated water from the ROM stockpile entering the underlying aquifer units. | The ROM stockpile must be operated on a lined surface. Any surface water run-off will be captured and handled as dirty water in the Surface Water Dam. | C3 | Level 4 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Groundwater pollution originating from the | The operation of a Storm Water Pollution | Level 4 | LOW | To prevent the seepage of | Prevent seepages and spillages of polluted water from the | C3 | Level 4 Risk | Environmental | During the | Part of | Opex | Operating | Bi- | Annual |

| OPERATIONAL PHASE - Management Measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|---|---|-----------------------|--|---|--|---|-----------------------|------------------------------|-----------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Storm Water Pollution Control Dam (SWPCD). | Control Dam (SWPCD) that can lead to a deterioration in ground water quality directly beneath the facility. | Risk | | contaminated water from the Storm Water Pollution Control Dam (SWPCD) entering the underlying aquifer units. | SWPCD by implementing the appropriate lining system. Excess run-off from the facility must be captured and managed as part of the operational phase water balance. | | | Manager | operational phase | mining costs. | | funds. | annually. | |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | CONVEYOR BELT ROUTE | | | | | | | |
| Operation of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area). | The Life of Mine operation of a coal conveyor belt will not intersect/impact ground water resources, so no impact will take place. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Activity Description | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
| Surface Water | | Surface Water | | | | | Surface Water | | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Impact on catchment yield: Dirty areas will be isolated by means of clean water diversions and containment canals draining to PCDs. Infrastructure on surface totals less than 30ha in extent, and impact on yield is considered negligible. | Level 6 Risk | High | Minimise loss of yield due to infrastructure | - Extent of dirty areas to be minimised. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| | Impact on water quality: - Contamination of runoff water that contacts with carbonaceous material on surface - Seepage from the PCDs - Risk of spill from the PCDs | Level 3 Risk | Low | Keep clean water clean, contain dirty water with a risk of spilling of 2% or less in any one year | - Divert clean runoff around dirty areas - Provision of dirty water containment canals directing dirty runoff to PCDs - PCDs to be designed to have a 2% or lower risk of spilling in any one year - Washbays & workshops will be equipped with oil skimmers - Emergency coal stockpile will be engineered with measures to contain seepage and minimise ingress to groundwater system. | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Impact on water quality: Potential impact due to spillage of coal from overloaded conveyors and at transfer stations. | Level 6 Risk | Low | Keep clean water clean, contain dirty water with a risk of spilling of 2% or less in any one year | - Belt to be turned and cleaned at either end to keep the dirty side facing up - Conveyor to be entirely enclosed at watercourse crossings. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | Impact on catchment yield: Dirty areas will be isolated by means of clean water diversions and containment canals draining to PCDs. Infrastructure on surface totals less than 30ha in extent, and impact on yield is considered negligible. | Level 6 Risk | High | Minimise loss of yield due to infrastructure | - Extent of dirty areas to be minimised. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| | Impact on water quality: - Contamination of runoff water that contacts with carbonaceous material on surface - Seepage from the PCDs - Risk of spill from the PCDs | Level 3 Risk | Low | Keep clean water clean, contain dirty water with a risk of spilling of 2% or less in any one year | - Divert clean runoff around dirty areas - Provision of dirty water containment canals directing dirty runoff to PCDs - PCDs to be designed to have a 2% or lower risk of spilling in any one year - Washbays & workshops will be equipped with oil skimmers - Emergency coal stockpile will be engineered with measures to contain seepage and minimise ingress to groundwater system. | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | Construction phase impact | | | | | | | | | | | | | |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | Impact on water quality: At an average water make of 5MI/day (average over life of mine), but increasing to 10MI/day just before closure and sulphate concentration conservatively estimated at 2500mg/l, the mine could generate an average of 25 tons of sulphate per day, impacting on surface water users, instream aquatic life and the salt loading on dam systems. TDS would be expected to be around double this, with a total loading of around 50 tons per day. | Level 1 Risk | Low | Keep clean water clean, contain dirty water with a risk of spilling of 2% or less in any one year | - Use of storage underground - Reuse of dirty water - Use of water containment facilities with a 2% or lower risk of spilling in any one year - Provision for treatment of dirty water where necessary - Provision for monitoring of the water balance and management of the water balance, as well as upstream and downstream water qualities to ensure that the above is achieved. - Any discharge would be in accordance with a license issued by DWA. Any spillage would only be during extreme events (1:50 year or greater). | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of an Access Road (wider | Construction phase impact | | | | | | | | | | | | | |

| OPERATIONAL PHASE - Management Measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | | |
|--|-----------------------------------|--|-----------------------|---|---|--|-----------------------------|--|------------------------------|-----------------------|-------------------|---------------------|------------------|------------------------|---|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment | |
| than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | | | | | | | | | | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (i). | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | | Level 6 Risk | Low | Keep clean water clean, contain dirty water with a risk of spilling of 2% or less in any one year | - Belt to be turned and cleaned at either end to keep the dirty side facing up - Conveyor to be entirely enclosed at watercourse crossings. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | | Level 6 Risk | High | Minimise loss of yield due to infrastructure | - Extent of dirty areas to be minimised. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| | | Level 3 Risk | Low | Keep clean water clean, contain dirty water with a risk of spilling of 2% or less in any one year | - Divert clean runoff around dirty areas - Provision of dirty water containment canals directing dirty runoff to PCDs - PCDs to be designed to have a 2% or lower risk of spilling in any one year - Washbays & workshops will be equipped with oil skimmers - Emergency coal stockpile will be engineered with measures to contain seepage and minimise ingress to groundwater system. | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | | |
| Taking water from a water resource - Section 21 (a). | | | | | | | | | | | | | | | |
| Storing of water - Section 21 (b). | | Level 6 Risk | High | Minimise loss of yield due to infrastructure | - Extent of dirty areas to be minimised. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | | Level 6 Risk | Low | Keep clean water clean, contain dirty water with a risk of spilling of 2% or less in any one year | - Belt to be turned and cleaned at either end to keep the dirty side facing up - Conveyor to be entirely enclosed at watercourse crossings. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | | Level 3 Risk | Low | Keep clean water clean, contain dirty water with a risk of spilling of 2% or less in any one year | - Divert clean runoff around dirty areas - Provision of dirty water containment canals directing dirty runoff to PCDs - PCDs to be designed to have a 2% or lower risk of spilling in any one year - Washbays & workshops will be equipped with oil skimmers - Emergency coal stockpile will be engineered with measures to contain seepage and minimise ingress to groundwater system. | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | | Level 6 Risk | Low | Keep clean water clean, contain dirty water with a risk of spilling of 2% or less in any one year | - Belt to be turned and cleaned at either end to keep the dirty side facing up - Conveyor to be entirely enclosed at watercourse crossings. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | | Level 1 Risk | Low | Keep clean water clean, contain dirty water with a risk of spilling of 2% or less in any one year | - Use of storage underground - Reuse of dirty water - Use of water containment facilities with a 2% or lower risk of spilling in any one year - Provision for treatment of dirty water where necessary - Provision for monitoring of the water balance and management of the water balance, as well as upstream and downstream water qualities to ensure that the above is achieved. - Any discharge would be in accordance with a license issued by DWA. Any spillage would only be during extreme events (1:50 year or greater). | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | | Exemptions from GNR 704 | | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged. | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |

| OPERATIONAL PHASE - Management Measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|--|-----------------------------------|--|-----------------------|---|---|--|--|-----------------------|------------------------------|-----------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| undermined, unstable or cracked - Regulation 4(a). | | | | | | | | | | | | | | |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | | Level 5 Risk | High | Minimise the recharge of surface water to the underground mining | - No high extraction mining will take place under watercourses. - Conservative pillar safety factors will be used in bord & pillar areas, particularly where watercourses are undermined. Surface above stooped areas will be inspected to ensure it remains free draining. - Where necessary, civil works such as cutting of drains will be undertaken to restore free drainage at areas of subsidence. | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | | |
| NEMWA Section 19(3) and GN 718. | | | | | | | | | | | | | | |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | MINE SHAFT AREAS | | | | | | | |
| Impact on catchment yield: Dirty areas will be isolated by means of clean water diversions and containment canals draining to PCDs. Infrastructure on surface totals less than 30ha in extent, and impact on yield is considered negligible. | | Level 6 Risk | High | Minimise loss of yield due to infrastructure | - Extent of dirty areas to be minimised. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Coal handling infrastructure (shaft, bunker workshops, offices and stockpiles) | | Level 3 Risk | Low | Keep clean water clean, contain dirty water with a risk of spilling of 2% or less in any one year | - Divert clean runoff around dirty areas - Provision of dirty water containment canals directing dirty runoff to PCDs - PCDs to be designed to have a 2% or lower risk of spilling in any one year - Washbays & workshops will be equipped with oil skimmers - Emergency coal stockpile will be engineered with measures to contain seepage and minimise ingress to groundwater system. | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Impact on/of extreme flooding events: Offices, workshops and stockyard and shaft areas have been located outside the 1:100 year flood line. | | Level 6 Risk | Low | Prevent impacts on infrastructure and mining due to flood events | None | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| All other remaining operational shafts (Main Shaft, West Shaft and Ithembaletu Shaft) and decommissioned shafts (North Shaft and North-West Shaft). | | Level 6 Risk | High | Minimise loss of yield due to infrastructure | - Extent of dirty areas to be minimised. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| UNDERGROUND MINING ACTIVITIES OF THE NOS 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NOS 2 AND 4 COAL SEAM | | | | | UNDERGROUND MINING ACTIVITIES OF THE NOS 2 AND 4 COAL SEAM | | | | | | | |
| Underground mining | | Level 5 Risk | High | Minimise the recharge of surface water to the underground mining | - Surface above stooped areas will be inspected to ensure it remains free draining. - Where necessary, civil works such as cutting of drains will be undertaken to restore free drainage at areas of subsidence. | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Potential mine water discharge | | Level 1 Risk | Low | Keep clean water clean, contain dirty water with a risk of spilling of 2% or less in any one year | - Use of storage underground - Reuse of dirty water - Use of water containment facilities with a 2% or lower risk of spilling in any one year - Provision for treatment of dirty water where necessary - Provision for monitoring of the water balance and management of the water balance, as well as upstream and downstream water qualities to ensure that the above is achieved. - Any discharge would be in accordance with a license issued by DWA. Any spillage would only be during extreme events (1:50 year or greater). | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | CONVEYOR BELT ROUTE | | | | | | | |
| Transport of coal via conveyor to the stockyard at Sasol Synfuels | | Level 6 Risk | Low | Keep clean water clean, contain dirty water with a risk of spilling of 2% or less in any one year | - Belt to be turned and cleaned at either end to keep the dirty side facing up - Conveyor to be entirely enclosed at watercourse crossings. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |

| OPERATIONAL PHASE - Management Measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|--|---|-----------------------|---|--|--|---|-----------------------|------------------------------|-----------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Plant Life | | | | | | | | Plant Life | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Continuous alien plant invasions, habitat deterioration, change in physical abiotic conditions, potential spillages. | Level 5 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Compile alien plant management plan, control dust. | C2 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Continuous alien plant invasions, habitat deterioration, change in physical abiotic conditions, potential spillages. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Compile alien plant management plan, control dust. | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | Spillages from the dam leading to a change in the physical abiotic conditions. | Level 4Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Compile alien plant management plan, control dust. | C3 | Level 4Risk | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Spillages from diesel tanks leading to a change in the physical abiotic conditions. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Compile alien plant management plan, control dust. | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Alien plant invasions during the operation of the site. | Level 5 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Compile alien plant management plan, control dust. | C2 | Level 5 Risk | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Alien plant invasions during the operation of the site. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Compile alien plant management plan, control dust. | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Spillages along the access roads leading to a change in the physical abiotic conditions. | Level 5 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Compile alien plant management plan, control dust. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | Alien plant invasions, habitat deterioration, change in physical abiotic conditions. | Level 5 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Compile alien plant management plan, control dust. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | Alien plant invasions, habitat deterioration, change in physical abiotic conditions. | Level 5 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Compile alien plant management plan, control dust. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | Alien plant invasions, habitat deterioration, change in physical abiotic conditions. | Level 5 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Compile alien plant management plan, control dust. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | | |
| Taking water from a water resource - Section 21 (a). | Change in physical abiotic conditions. | Level 5 Risk | MEDIUM | Ensure biological thresholds are not exceeded | Compile alien plant management plan, determine minimum water quantity and quality requirements for maintaining ecosystem function | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | Alien plant invasions, habitat deterioration, change in physical abiotic conditions. | Level 4Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate development areas and keep all activities within, compile alien plant management plan, undertake plant rescue for medicinal populations. | C3 | Level 4Risk | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | Change in physical abiotic conditions. | Level 5 Risk | MEDIUM | Ensure biological thresholds are not exceeded | Compile alien plant management plan, determine minimum water quantity and quality requirements for maintaining ecosystem function | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | Alien plant invasions, habitat deterioration, change in physical abiotic conditions. | Level 4Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate development areas and keep all activities within, compile alien plant management plan, undertake plant rescue for medicinal populations. | C3 | Level 4Risk | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | Exemptions from GNR 704 | | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | Alien plant invasions, habitat deterioration, change in physical abiotic conditions. | Level 5 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Compile alien plant management plan, control dust. | C2 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining. | Alien plant invasions, habitat deterioration, change in physical abiotic conditions. | Level 5 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Compile alien plant management plan, control dust. | C2 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |

| OPERATIONAL PHASE - Management Measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|--|--|-----------------------|---|--|--|--|-----------------------|------------------------------|-----------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | | | | | | | | | | | | | | |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | Alien plant invasions, habitat deterioration, change in physical abiotic conditions. | Level 5 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Compile alien plant management plan, control dust. | C2 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | Alien plant invasions, habitat deterioration, change in physical abiotic conditions. | Level 5 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Compile alien plant management plan, control dust. | C2 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | | |
| NEMWA Section 19(3) and GN 718. | Habitat deterioration, change in physical abiotic conditions | Level 6 Risk | MEDIUM | Ensure biological thresholds are not exceeded | Compile alien plant management plan, determine minimum water quantity and quality requirements for maintaining ecosystem function | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | MINE SHAFT AREAS | | | | | | | |
| Operation of the shaft complex at Shondoni | Alien plant invasions | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate development areas and keep all activities within, compile alien plant management plan, undertake plant rescue for medicinal populations. | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| All other remaining operational shafts (Main Shaft, West Shaft and Ithembaletu Shaft) and decommissioned shafts (North Shaft and North-West Shaft). | Alien plant invasions | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate development areas and keep all activities within, compile alien plant management plan, undertake plant rescue for medicinal populations. | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | | |
| None. | None. | | | | | | | | | | | | | |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | CONVEYOR BELT ROUTE | | | | | | | |
| Operation of the conveyor | Alien plant invasions, habitat deterioration, change in physical abiotic conditions. | Level 5 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate development areas and keep all activities within, compile alien plant management plan, control dust and undertake plant rescue for medicinal populations. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| | | | | | | | | EMP COMPONENTS | | | | | | |
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Animal Life | | Animal Life | | | | | Animal Life | | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Habitat Deterioration and Loss of Red Data List Fauna: Activities during the operational phase may lead to a deterioration of habitat at the edges of the built-up areas and accidental loss of Red Data List fauna. | Level 5 Risk | medium | Prevent unnecessary habitat disturbance and minimise the likelihood of loss of fauna | Any activities or structures within the 1:100 year flood line or within wetland areas should be carefully controlled and regularly monitored to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. Dust should be controlled. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Habitat Deterioration and Loss of Red Data List Fauna: Activities during the operational phase may lead to a deterioration of habitat at the edges of the built-up areas and accidental loss of Red Data List fauna. | Level 5 Risk | medium | Prevent unnecessary habitat disturbance and minimise the likelihood of loss of fauna | Any activities or structures within the 1:100 year flood line or within wetland areas should be carefully controlled and regularly monitored to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. Dust should be controlled. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft | Habitat Deterioration and Loss of Red Data List Fauna: Activities during the operational | Level 5 Risk | medium | Prevent unnecessary habitat disturbance and minimise | Any activities or structures within the 1:100 year flood line or within wetland areas should be carefully controlled and | C3 | Level 5 Risk | Environmental Manager | During the operational | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |

| OPERATIONAL PHASE - Management Measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|--|------------------------------|-----------------------|--|--|--|-----------------------------|-----------------------|------------------------------|-----------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | phase may lead to a deterioration of habitat at the edges of the built-up areas and accidental loss of Red Data List fauna. | | | the likelihood of loss of fauna | regularly monitored to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. Dust should be controlled. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | | | | phase | | | | | |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | Habitat Deterioration and Loss of Red Data List Fauna: Activities during the operational phase may lead to a deterioration of habitat at the edges of the built-up areas and accidental loss of Red Data List fauna. | Level 5 Risk | medium | Prevent unnecessary habitat disturbance and minimise the likelihood of loss of fauna | Any activities or structures within the 1:100 year flood line or within wetland areas should be carefully controlled and regularly monitored to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. Dust should be controlled. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Habitat Deterioration and Loss of Red Data List Fauna: Activities during the operational phase may lead to a deterioration of habitat at the edges of the built-up areas and accidental loss of Red Data List fauna. | Level 5 Risk | medium | Prevent unnecessary habitat disturbance and minimise the likelihood of loss of fauna | Any activities or structures within the 1:100 year flood line or within wetland areas should be carefully controlled and regularly monitored to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. Dust should be controlled. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Habitat Deterioration and Loss of Red Data List Fauna: Activities during the operational phase may lead to a deterioration of habitat at the edges of the built-up areas and accidental loss of Red Data List fauna. | Level 5 Risk | medium | Prevent unnecessary habitat disturbance and minimise the likelihood of loss of fauna | Any activities or structures within the 1:100 year flood line or within wetland areas should be carefully controlled and regularly monitored to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. Dust should be controlled. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | None | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Habitat Deterioration and Loss of Red Data List Fauna: Activities during the operational phase may lead to a deterioration of habitat at the edges of the built-up areas and accidental loss of Red Data List fauna. | Level 5 Risk | medium | Prevent unnecessary habitat disturbance and minimise the likelihood of loss of fauna | Any activities or structures within the 1:100 year flood line or within wetland areas should be carefully controlled and regularly monitored to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. Dust should be controlled. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Habitat Deterioration and Loss of Red Data List Fauna: Activities during the operational phase may lead to a deterioration of habitat at the edges of the built-up areas and accidental loss of Red Data List fauna. | Level 5 Risk | medium | Prevent unnecessary habitat disturbance and minimise the likelihood of loss of fauna | Any activities or structures within the 1:100 year flood line or within wetland areas should be carefully controlled and regularly monitored to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. Dust should be controlled. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | | Level 5 Risk | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual |

| OPERATIONAL PHASE - Management Measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|--|--|-----------------------|--|--|--|--|-----------------------|------------------------------|-----------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| | | | | | | C3 | | | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (i). | Habitat Deterioration and Loss of Red Data List Fauna: Activities during the operational phase may lead to a deterioration of habitat at the edges of the built-up areas and accidental loss of Red Data List fauna. | Level 5 Risk | medium | Prevent unnecessary habitat disturbance and minimise the likelihood of loss of fauna | Any activities or structures within the 1:100 year flood line or within wetland areas should be carefully controlled and regularly monitored to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. Dust should be controlled. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | Habitat Deterioration and Loss of Red Data List Fauna: Activities during the operational phase may lead to a deterioration of habitat at the edges of the built-up areas and accidental loss of Red Data List fauna. | Level 5 Risk | medium | Prevent unnecessary habitat disturbance and minimise the likelihood of loss of fauna | Any activities or structures within the 1:100 year flood line or within wetland areas should be carefully controlled and regularly monitored to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. Dust should be controlled. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | Habitat Deterioration and Loss of Red Data List Fauna: Activities during the operational phase may lead to a deterioration of habitat at the edges of the built-up areas and accidental loss of Red Data List fauna. | Level 5 Risk | medium | Prevent unnecessary habitat disturbance and minimise the likelihood of loss of fauna | Any activities or structures within the 1:100 year flood line or within wetland areas should be carefully controlled and regularly monitored to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. Dust should be controlled. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | | |
| Taking water from a water resource - Section 21 (a). | Habitat Deterioration: Removing water from the water resource could affect the habitat quality for fauna causing them to move to more suitable habitat | Level 5 Risk | medium | Prevent habitat deterioration | Quantities of water taken from the water resource should be closely monitored to ensure the taking of water does not affect the hydrology of the water resource. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | Habitat Deterioration | Level 5 Risk | medium | Prevent habitat deterioration | Any activities or structures within the 1:100 year flood line or within wetland areas should be carefully controlled and regularly monitored to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. Dust should be controlled. No polluted or dirty water should be discharged into the environment. Dirty water should either be treated on site to acceptable quality standards or stored and then removed by qualified and licensed waste management contractors to be | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |

| OPERATIONAL PHASE - Management Measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|--|--------------------------------|-----------------------|--|---|--|--------------------------------|-----------------------|------------------------------|-----------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| | | | | | treated off-site. Any clean water discharged into the environment should be handled in such a way that its discharge does not cause erosion or alter the natural hydrology within wetlands and rivers. | | | | | | | | | |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | Habitat Deterioration: Discharging of polluted water into the water resource could affect the habitat quality for fauna causing them to move to more suitable habitat | Level 5 Risk | medium | Prevent habitat deterioration | No polluted or dirty water should be discharged into the environment. Dirty water should either be treated on site to acceptable quality standards or stored and then removed by qualified and licensed waste management contractors to be treated off-site. Any clean water discharged into the environment should be handled in such a way that its discharge does not cause erosion or alter the natural hydrology within wetlands and rivers. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | Habitat Deterioration: Discharging of polluted or contaminated substances into the water resource could affect the habitat quality and pose a health risk for fauna causing them to move to more suitable habitat | Level 5 Risk | medium | Prevent habitat deterioration | No polluted or dirty water should be discharged into the environment. Dirty water should either be treated on site to acceptable quality standards or stored and then removed by qualified and licensed waste management contractors to be treated off-site. Any clean water discharged into the environment should be handled in such a way that its discharge does not cause erosion or alter the natural hydrology within wetlands and rivers. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | Habitat Deterioration | Level 5 Risk | medium | Prevent habitat deterioration | Any activities or structures within the 1:100 year flood line or within wetland areas should be carefully controlled and regularly monitored to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. Dust should be controlled. No polluted or dirty water should be discharged into the environment. Dirty water should either be treated on site to acceptable quality standards or stored and then removed by qualified and licensed waste management contractors to be treated off-site. Any clean water discharged into the environment should be handled in such a way that its discharge does not cause erosion or alter the natural hydrology within wetlands and rivers. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | Habitat Deterioration: Discharging of polluted or contaminated water into the water resource could affect the habitat quality and pose a health risk for fauna causing them to move to more suitable habitat | Level 5 Risk | medium | Prevent habitat deterioration | No polluted or dirty water should be discharged into the environment. Dirty water should either be treated on site to acceptable quality standards or stored and then removed by qualified and licensed waste management contractors to be treated off-site. Any clean water discharged into the environment should be handled in such a way that its discharge does not cause erosion or alter the natural hydrology within wetlands and rivers. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | Exemptions from GNR 704 | | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | Habitat Deterioration and Loss of Red Data List Fauna: Activities during the operational phase may lead to a deterioration of habitat at the edges of the built-up areas and accidental loss of Red Data List fauna. | Level 5 Risk | medium | Prevent unnecessary habitat disturbance and minimise the likelihood of loss of fauna | Any activities or structures within the 1:100 year flood line or within wetland areas should be carefully controlled and regularly monitored to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. Dust should be controlled. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | Habitat Deterioration and Loss of Red Data List Fauna: Activities during the operational phase may lead to a deterioration of habitat at the edges of the built-up areas and accidental loss of Red Data List fauna. | Level 5 Risk | medium | Prevent unnecessary habitat disturbance and minimise the likelihood of loss of fauna | Any activities or structures within the 1:100 year flood line or within wetland areas should be carefully controlled and regularly monitored to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. Dust should be controlled. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | Habitat Deterioration and Loss of Red Data List Fauna: Activities during the operational phase may lead to a deterioration of habitat at the edges of the built-up areas and accidental loss of Red Data List fauna. | Level 5 Risk | medium | Prevent unnecessary habitat disturbance and minimise the likelihood of loss of fauna | Any activities or structures within the 1:100 year flood line or within wetland areas should be carefully controlled and regularly monitored to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. Dust should be controlled. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |

| OPERATIONAL PHASE - Management Measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|---|--|-----------------------|--|---|--|-----------------------------|--|------------------------------|-----------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | Habitat Deterioration and Loss of Red Data List Fauna: Activities during the operational phase may lead to a deterioration of habitat at the edges of the built-up areas and accidental loss of Red Data List fauna. | Level 5 Risk | medium | Prevent unnecessary habitat disturbance and minimise the likelihood of loss of fauna | appropriate relocation sites. Any activities or structures within the 1:100 year flood line or within wetland areas should be carefully controlled and regularly monitored to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. Dust should be controlled. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | |
| NEMWA Section 19(3) and GN 718. | Habitat Deterioration | Level 3 Risk | medium | Prevent habitat deterioration | No polluted or dirty water should be discharged into the environment. Dirty water should either be treated on site to acceptable quality standards or stored and then removed by qualified and licensed waste management contractors to be treated off-site. Any clean water discharged into the environment should be handled in such a way that its discharge does not cause erosion or alter the natural hydrology within wetlands and rivers. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | | MINE SHAFT AREAS | | | | | | |
| Construction and commission of the Shondoni Shaft Complex and all associated infrastructure | Loss of Red Data List Fauna: Operational activities may lead to the accidental or deliberate death of fauna and avifauna. Habitat Deterioration: Activities during the operational phase, discharge of polluted water into, and abstraction of water from, the water resource could affect the habitat quality for fauna causing them to move to more suitable habitat. | Level 5 Risk | medium | Prevent habitat deterioration | Any activities or structures within the 1:100 year flood line or within wetland areas should be carefully controlled and regularly monitored to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. Dust should be controlled. No polluted or dirty water should be discharged into the environment. Dirty water should either be treated on site to acceptable quality standards or stored and then removed by qualified and licensed waste management contractors to be treated off-site. Any clean water discharged into the environment should be handled in such a way that its discharge does not cause erosion or alter the natural hydrology within wetlands and rivers. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| All other remaining operational shafts (Main Shaft, West Shaft and Ithembalethu Shaft) and decommissioned shafts (North Shaft and North-West Shaft). | Loss of Red Data List Fauna: Operational activities may lead to the accidental or deliberate death of fauna and avifauna. Habitat Deterioration: Activities during the operational phase, discharge of polluted water into, and abstraction of water from, the water resource could affect the habitat quality for fauna causing them to move to more suitable habitat. | Level 5 Risk | medium | Prevent habitat deterioration | Any activities or structures within the 1:100 year flood line or within wetland areas should be carefully controlled and regularly monitored to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. Dust should be controlled. No polluted or dirty water should be discharged into the environment. Dirty water should either be treated on site to acceptable quality standards or stored and then removed by qualified and licensed waste management contractors to be treated off-site. Any clean water discharged into the environment should be handled in such a way that its discharge does not cause erosion or alter the natural hydrology within wetlands and rivers. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | |
| None | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | | CONVEYOR BELT ROUTE | | | | | | |
| Operation of the Conveyer Belt and presence of the fenced servitude between the Shondoni Shaft Complex and the Middelbult Main Shaft Conveyer | Loss of Red Data List Fauna: Operational activities may lead to the accidental or deliberate death of fauna and avifauna | Level 5 Risk | medium | Prevent the unnecessary death of fauna | An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Operation of the Conveyer Belt and presence of the fenced servitude between the Shondoni Shaft Complex and the Middelbult Main Shaft Conveyer | Habitat Deterioration: Activities during the operational phase, discharge of polluted water into, and abstraction of water from, the water resource could affect the habitat quality for fauna causing them to move to more suitable habitat | Level 5 Risk | medium | Prevent habitat deterioration | Any activities or structures within the 1:100 year flood line or within wetland areas should be carefully controlled and regularly monitored to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. Dust should be controlled. No polluted or dirty water should be discharged into the environment. Dirty water should either be treated on site to acceptable quality standards or stored and then removed by qualified and licensed waste management contractors to be treated off-site. Any clean water discharged into the environment should be handled in such a way that its discharge does not cause erosion or alter the natural hydrology within wetlands and rivers. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| | | Risk Level Before | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After | Risk Level After | EMP COMPONENTS | | | | | | |

| Activity Description | Impact Identification/Description | Mitigation | | | | Mitigation - C Number | Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment | |
|---|--|--|----------|--|--|-----------------------|--------------|--|------------------------------|----------------------|-------------------|---------------------|------------------|------------------------|--|
| Wetlands | | Wetlands | | | | | | Wetlands | | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Operation of the coal throw out stockpile area could result in the deterioration of water quality of adjacent wetlands through run-off from the stockpile and from dust. | Level 4 Risk | Moderate | Prevent water quality deterioration. | Coal throw out stockpile area should be located within the dirty water area of the shaft complex. All run-off from the coal stockpile should be captured in the pollution control dams. This water may not be discharged into the environment. The base of the coal stockpile should be sealed to prevent infiltration of polluted water into the ground. Regular monitoring of the water quality of adjacent wetlands should be undertaken. Should a deterioration in water quality be experience, immediate corrective measures will be required. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual | |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Most impacts of the conveyor pedestal are expected during the construction phase. However, if the pedestal leads to concentration of flows, this could result in erosion through the operational phase. Coal dust blown off the conveyor could result in deterioration of water quality. | Level 4 Risk | Moderate | Prevent erosion and water quality deterioration. | The conveyor should be covered and make use of roll-overs to prevent spillage of coal. Regular monitoring of all conveyor crossings need to be undertaken to check for signs of erosion and to clear debris that may have been caught on the conveyor pedestals. Any erosion damage observed needs to be repaired immediately and bare soil areas re-vegetated. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual | |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | Leakage and seepage from the service water and storm water pollution control dams could lead to deterioration in water quality of adjacent wetlands. | Level 4 Risk | Moderate | Prevent water quality deterioration. | Dams should be sealed to prevent leakage. Dams should be located within the dirty water area of the shaft complex. Cut-off trenches should be installed downslope of the dams to intercept any leakage or seepage, with intercepted water being pumped back into the pollution control dams. This water may not be discharged into the environment. Storm water pollution control dams should always be maintained at an empty level to maximise volumes of storm water than can be captured during rainfall events. Dams will have to be regularly cleared of sediments to maintain capacity. Regular monitoring of the water quality of adjacent wetlands should be undertaken. Should a deterioration in water quality be experience, immediate corrective measures will be required. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual | |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | All excavation will take place during the construction phase. No excavation will take place during the operational phase, thus no impacts are expected. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Deterioration in water quality due to leakages and spillages during operation. | Level 4 Risk | Moderate | Prevent water quality deterioration. | Diesel storage tanks as well as parking area for vehicles during re-fuelling should be located within the dirty water area of the shaft complex on designated bunded areas. All run-off from the bunded areas should be captured, and may not be discharged into any water resource. Regular monitoring of the water quality of adjacent wetlands should be undertaken. Should a deterioration in water quality be experience, immediate corrective measures will be required. | C3 | Level 5 Risk | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual | |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | This impact is limited to the construction phase. No vegetation clearing will take place during the operational phase. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | Dewatering of the underground workings should not impact on the wetlands on site, as these are mostly maintained by surface water. However, discharge of this water into wetlands could result in deterioration of water quality and altered flows within the receiving wetland. | Level 4 Risk | Low | Prevent release of water from the underground workings into any water resource | No water pumped out of the underground workings may be discharged into any water resource. A storage dam for water derived from the underground workings should be constructed on site to store this water. The water should be re-used as process water on the mine. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual | |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Operation of the Tetra Radio Station is not expected to have any impact on the wetlands on site. The radio station will be located within the shaft complex and all storm water associated with the radio station will be captured in the shaft's storm water management system. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Operation of the access road could result in the deterioration of water quality due to spillages from vehicles as well as storm water run-off from the road surface. Storm water run-off could also result in erosion within the water course and at erosion discharge points. | Level 5 Risk | Moderate | Prevent deterioration of water quality and erosion. | All spills should be reported and cleaned immediately by suitably trained staff. Where these spills enter any wetlands on site a suitable wetland specialist should be tasked with compiling a rehabilitation plan. All wetland crossings should be regularly inspected for erosion and any erosion damage repaired. All debris should be removed from culverts and storm water discharge points at regular intervals. Litter should be collected along the road at once per week intervals. | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | Most impacts associated with the power lines are expected during the construction phase. If the mitigation measures for the construction phase are fully implemented, no significant impacts are expected during the operational phase. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft | Deterioration of water quality due to spillages. | Level 5 Risk | Moderate | Prevent erosion and water quality deterioration. | The conveyor should be covered and make use of roll-overs to prevent spillage of coal. Spillage should be reported and | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual | |

| OPERATIONAL PHASE - Management Measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|--|--|-----------------------|---|---|--|-----------------------------|--|------------------------------|----------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | | | | | cleaned up immediately. Where spillages enter a wetland, a suitable wetland specialist should compile a rehabilitation plan. | | | | phase | | | | | |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | The impact of the surface disturbance associated with the shaft area are dealt with under the construction table. Operation of the shaft area will result in generation of storm water, the discharge of which could result in erosion and water quality deterioration in receiving wetlands. | Level 4 Risk | Moderate | Prevent erosion and water quality deterioration. | Clean and dirty water should be separated. Only clean water may be discharged into the environment. Install erosion protection measures. Regular inspect discharge points for damage and repair if necessary. | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | |
| Taking water from a water resource - Section 21 (a). | Where water is taken from a groundwater source on site, no significant impact is expected to the wetlands. Where water is taken from a wetland, decreased flows within the affected wetland could result in a change in species composition of the biodiversity associated with that wetland. | Level 5 Risk | Low | Prevent abstraction of water from any wetlands on site. | No water abstraction should be allowed from any of the wetlands on site. Domestic water should be supplied by Rand Water, while process water should be derived from underground workings. No surface waters on site should be utilised as water sources for dust suppression, unless authorised by a water use licence. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | Any activities that impede or impound flows within the wetlands on site could result in changes to the wetland hydrology, resulting in increased erosion risk where flow concentration has taken place, while extended saturation due to impoundment of flows could result in changes to species composition. | Level 4 Risk | Moderate | Prevent concentration of flows and increase in flow velocities downstream of crossings, and impoundment upslope of crossings. | No infrastructure should be located within the identified wetland areas on site, other than where the access road and conveyor route have to cross wetlands. Crossings should strive to maintain the predevelopment flows. This will require numerous culverts across the full width of wetlands in the case of the road crossing to prevent concentration and impoundment of flows. In terms of the conveyor, no conveyor footings should be located within the active channel of any water course. Post construction, the wetlands should be re-landscaped to the natural landscape profile and re-vegetated with indigenous species. | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | Deterioration in water quality as well as altered hydrology are likely to result from the discharge of water containing waste, resulting in changes to the species composition of aquatic fauna as sensitive taxa are lost, as well as increased sediment transport and erosion due to increased flows. | Level 4 Risk | Moderate | Prevent deterioration in water quality of the receiving water resource | Ideally no water containing waste should be discharged into any wetlands on site. Waste water should be treated and re-used on site. Should it become necessary to discharge any water, this water will have to comply with the applicable water quality standards. | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | Waste disposal could result in a deterioration of water quality. | Level 4 Risk | Moderate | Prevent deterioration in water quality of the adjacent water resource | Waste should be disposed of in registered waste disposal sites. No waste disposal should take place on site. Temporary storage of waste on site should take place within a bunded area located within the dirty water area. | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | Any activity altering the bed, banks or characteristics of a water resource could result in loss of wetland habitat, increased erosion risk and sediment transport, water quality deterioration (increase in suspended solids and turbidity) and an increase in alien vegetation due to disturbance. | Level 4 Risk | High | Minimise erosion and sediment loss during construction process. | With the exception of the wetland crossings associated with the access road and coal conveyor, no infrastructure should be located within the wetlands on site. Wetland crossings should not result in flow concentration or alterations to the flood lines of drainage lines and rivers. Construction should be undertaken during low flow periods. No conveyor footings should be located in the active channel of any rivers or streams. | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | Removal of water from the underground workings per se is not expected to have any impact on the wetlands of the area, as these wetlands are considered to be supported by surface water. However, release of this water into any water resource is likely to result in changes to the hydrology (flow volumes and velocities) of the receiving water resource, a change in water quality as well as an increased erosion risk. | Level 4 Risk | Low | Prevent deterioration of water quality and changes to hydrology. | No discharge of water from underground in any water resources should take place. Water should be stored on site and used a process water during operation. | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | | Exemptions from GNR 704 | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | These activities could result in the deterioration of water quality during the operational phase. | Level 4 Risk | Moderate | Prevent the deterioration of water quality | All infrastructure that can cause pollution of water resources should be located within the dirty water area of the mine. Dirty water should be captured and stored - it may not be released. Dirty water should be used for dust suppression within the mine as well as for process water as far as possible. | C3 | Level 4 Risk | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 | Undermining of wetlands could result in wetland loss and degradation where surface subsidence occurs. Fractures in the strata underlying the wetlands could result in loss of surface water to groundwater, leading to desiccation of wetlands and changes in species composition. | Level 4 Risk | High | Prevent surface subsidence under wetlands | Ideally no surface subsidence should be allowed to take place, especially not underneath the floodplain wetlands and larger valley bottom wetlands. The mine plan/mining method should be adjusted accordingly. | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual |

| OPERATIONAL PHASE - Management Measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|--|---|-----------------------|--|---|--|---|-----------------------|------------------------------|-----------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | | | | | | | | | | | | | | |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | These activities could result in the deterioration of water quality during the operational phase. | Level 4 Risk | Moderate | Prevent the deterioration of water quality | All infrastructure that can cause pollution of water resources should be located within the dirty water area of the mine. Dirty water should be captured and stored - it may not be released. Dirty water should be used for dust suppression within the mine. | C3 | Level 4 Risk | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | These activities could result in the deterioration of water quality during the operational phase. | Level 4 Risk | Moderate | Prevent the deterioration of water quality | All infrastructure that can cause pollution of water resources should be located within the dirty water area of the mine. Dirty water should be captured and stored - it may not be released. Dirty water should be used for dust suppression within the mine. | C3 | Level 4 Risk | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | | |
| NEMWA Section 19(3) and GN 718. | Operation of a sewage treatment plant could result in the deterioration of water quality. | Level 4 Risk | Moderate | Prevent the deterioration of water quality | All sewage should be treated to comply with the relevant standards. Treated | | | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | MINE SHAFT AREAS | | | | | | | |
| Operation of Shondoni shaft complex | Water quality deterioration due to discharge of storm water. Erosion due to discharge of storm water. Disturbance to wetlands located adjacent to the shaft area. | Level 4 Risk | Moderate | Minimise the deterioration of water quality | Clean and dirty water should be separated. No dirty water may be discharged. Erosion protection measures should be installed at storm water discharge points. Discharge points should be regularly inspected and cleared of debris. | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual |
| All other remaining operational shafts (Main Shaft, West Shaft and Ithembaletu Shaft) and decommissioned shafts (North Shaft and North-West Shaft). | Water quality deterioration due to discharge of storm water. Erosion due to discharge of storm water. Disturbance to wetlands located adjacent to the shaft area. | Level 4 Risk | Moderate | Minimise erosion at discharge points | Clean and dirty water should be separated. No dirty water may be discharged. Erosion protection measures should be installed at storm water discharge points. Discharge points should be regularly inspected and cleared of debris. Any erosion damage should be repaired immediately. | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | | |
| Underground mining. | Undermining of wetlands could result in wetland loss and degradation where surface subsidence occurs. Fractures in the strata underlying the wetlands could result in loss of surface water to groundwater, leading to desiccation of wetlands and changes in species composition. | Level 4 Risk | High | Prevent loss of wetlands due to surface subsidence | Ideally no surface subsidence should be allowed to take place, especially not underneath the floodplain wetlands and larger valley bottom wetlands. The mine plan/mining method should be adjusted accordingly. | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | CONVEYOR BELT ROUTE | | | | | | | |
| Operation of conveyor | Spillages and coal dust from the conveyor could result in water quality deterioration | Level 5 Risk | Moderate | Prevent erosion and water quality deterioration. | The conveyor should incorporate turnovers to minimise spillage during normal operation. Should larger spillages occur due to malfunctioning of the conveyor or for any other reason, clean up of the spillages should be undertaken as soon as possible following the event. In this regard regular inspection of the entire conveyor route should be undertaken. No belt transfers are to be located within the wetland areas on site. Where belt transfers are located in close proximity to wetland areas a small, shallow berm should be constructed between the belt transfer site and the wetland area to prevent direct run-off of storm water from the belt transfer site into the valley bottom wetland. | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Rehabilitation fund. | Opex/Rehab | Operating funds. | Bi-annually. | Annual |
| Aquatic Ecosystems | | Aquatic Ecosystems | | | | | Aquatic Ecosystems | | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Contamination of surface water or groundwater as a result of seepage/runoff/dust from stockpiles | Level 5 Risk | Medium | Prevent seepage or spills | The base of the stockpile should be appropriately sealed to prevent seepage. Ensure storm water from stockpiles is caught by dirty water retention dams which should be of sufficient capacity to cater for unforeseen high volumes so that dirty water is not released into the environment. Ensure overburden stockpile is capped, appropriately sloped and re-vegetated so as to prevent pooling and erosion. Erosion points should be immediately rehabilitated. Regular monitoring of downstream wetlands should be used to trigger corrective action in the event of deterioration. | 3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Acidification of surface water as a result of leaks/ spills of pumped mine water en route to treatment facility or of coal/coal dust from the conveyor. Erosion may also occur where flows are constricted. | Level 4 Risk | LOW | Prevent spills and emergency preparedness | The pipeline must be fully enclosed at stream/wetland crossings, extending beyond wetland outer boundary. These enclosed sections should be regularly inspected to ensure no spillage or erosion. An emergency preparedness plan should be compiled to address pipeline leaks en route to the mine water | 5 | Level 4 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |

| OPERATIONAL PHASE - Management Measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|---|--|-----------------------|--|---|--|--|-----------------------|------------------------------|-----------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| | | | | | treatment facility and should include measures to avoid contamination of water courses. Erosion nick-points should be promptly rehabilitated and accumulated debris should be regularly removed to prevent constricted (i.e. erosive) flows in watercourses. | | | | | | | | | |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | Contamination of surface water or groundwater as a result of overspill, seepage or structural failure of pollution dams | Level 4 Risk | Medium | Prevent seepage or spills | Pollution control dams should be sealed to prevent seepage. Dam retaining walls should be regularly checked for safety and capacity (which should cater for unforeseen high volumes). Sediments should be removed to ensure capacity is maintained. Polluted water from the dams or cut-off trenches may not be pumped into the environment. An emergency preparedness plan should be prepared to cater for structural failure. Water quality monitoring should be undertaken in downstream watercourses and trigger immediate corrective action in the event of deterioration. | 5 | Level 4 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | Construction phase only | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Contamination of surface water as a result of spills or leaks | Level 5 Risk | Low | Prevent spills and emergency preparedness | Spills should be prevented as far as possible (e.g. effective bunding, appropriate storage and disposal). Bunded areas should be of sufficient capacity to cater for major spills. An emergency preparedness plan should be prepared and should include a system of incident reporting that requires immediate follow-up action. Spill kits should be available and accessible to all construction staff at all times. All runoff from bunded areas should be intercepted by pollution control facilities and may not be released into the environment. Oil-separators should be well maintained and monitored. | 3 | Level 4 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Construction phase only | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | Acidification, salinisation and increased sulphates and iron in surface water; Loss of sensitive taxa and biodiversity | Level 4 Risk | LOW | Prevent contamination of surface water with mine water | No pumped mine water must be discharged into the environment. Ensure that pipeline leaks are prevented and properly maintained. Mine water treatment facilities should be well maintained and capacity should cater for unforeseen/emergency high volumes. Leaks or spills should trigger an immediate incident response. Target water quality criteria should be set for watercourses and compliance ensured. Non-compliance should trigger incidents requiring immediate corrective action. | 3 | Level 4 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Operation of the access road could result in the deterioration of water quality due to spillages from vehicles as well as storm water run-off from the road surface. Storm water run-off could also result in erosion within the water course and at erosion discharge points. | Level 5 Risk | Moderate | Prevent deterioration of water quality and erosion. | All spills should be reported and cleaned immediately by suitably trained staff. Where these spills enter any wetlands on site a suitable wetland specialist should be tasked with compiling a rehabilitation plan. All wetland crossings should be regularly inspected for erosion and any erosion damage repaired. All debris should be removed from culverts and storm water discharge points at regular intervals. Litter should be collected along the road at once per week intervals. | 8 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (i). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | Pollution of surface water due to spillages/dust | Level 4 Risk | Low | Prevent spills and emergency preparedness | Dirty side of conveyor to face up at all times. The belt must be fully enclosed at stream/wetland crossings, extending beyond wetland outer boundary. These enclosed sections should be regularly inspected to ensure no spillage. Roads should be sprayed with dust suppressants and vehicles regularly washed at appropriate facilities to reduce transport of coal dust. | 4 | Level 4 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | The impact of the surface disturbance associated with the shaft area are dealt with under the construction table. Operation of the shaft area will result in generation of storm water, the discharge of which could result in erosion and water quality deterioration in receiving wetlands. | Level 5 Risk | Moderate | Prevent erosion and water quality deterioration. | Clean and dirty water should be separated. Only clean water may be discharged into the environment. Install erosion protection measures. Regular inspect discharge points for damage and repair if necessary. | 8 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | | |
| Taking water from a water resource - Section 21 (a). | Decreased base flows in watercourses, resulting in increased channelization and associated loss of floodplain habitats (e.g. oxbow lakes) | Level 5 Risk | High | Prevent loss of habitats | No water abstraction should be allowed from any of the wetlands on site. Domestic water should be supplied by Rand Water, while process water should be derived from underground workings. No surface waters on site should be utilised as water sources for dust suppression, unless authorised by a water use licence. | 4 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |

| OPERATIONAL PHASE - Management Measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|--|--------------------------------|-----------------------|---|---|--|-----------------------------|--------------------------------|------------------------------|-----------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| watercourse - Section 21 (c). | flows and cause erosion. Impounded flows will result in a change in species composition while erosion will result in water quality deterioration. | Risk | | flows | wetland areas on site, other than where the access road and conveyor route have to cross wetlands. Crossings should strive to maintain the predevelopment flows. This will require adequately sized culverts across the full width of wetlands in the case of the road crossing to prevent concentration and impoundment of flows. In terms of the conveyor, no conveyor footings should be located within the active channel of any water course. Post construction, the wetlands should be re-landscaped to the natural landscape profile and re-vegetated with indigenous species. | | | Manager | operational phase | mining costs. | | funds. | annually. | |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | Contamination of surface water (salinisation, acidification) through leaks | Level 4 Risk | LOW | Prevent spills and emergency preparedness | Mine water should be re-used as far as possible. The pipeline for pumping mine water should be regularly inspected to ensure no potential spills, leaks or structural damage. An emergency preparedness plan should be compiled to address pipeline leaks en route to the mine water treatment facility and should include measures to avoid contamination of water courses. | 3 | Level 4 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | Contamination of surface water and ground water | Level 5 Risk | Medium | Prevent seepage from stockpile | Ensure storm water from stockpiles is caught by dirty water retention dams. Ensure overburden stockpile is capped, appropriately sloped and re-vegetated so as to prevent pooling and erosion. Erosion points should be immediately rehabilitated. Dam retaining walls should be regularly checked for safety and capacity (which should cater for unforeseen high volumes). Prevent leaking pipes by adequate maintenance and mend leaks promptly. | 3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | Any activity altering the bed, banks or characteristics of a water resource could result in loss of wetland habitat, increased erosion risk and sediment transport, water quality deterioration (increase in suspended solids and turbidity) and an increase in alien vegetation due to disturbance. | 3 | High | Minimise erosion and sediment loss during construction process. | With the exception of the wetland crossings associated with the access road and coal conveyor, no infrastructure should be located within the wetlands on site. Wetland crossings should not result in flow concentration or alterations to the flood lines of drainage lines and rivers. Construction should be undertaken during low flow periods. No conveyor footings should be located in the active channel of any rivers or streams. | 5 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | Acidification and salinisation (especially by sulphates) of surface water; decreased base flows in watercourses resulting in loss of floodplain habitats | Level 4 Risk | LOW | Prevent contamination of surface water with mine water | Ensure that pipeline leaks are prevented and properly maintained. Mine water treatment facilities should be well maintained and capacity should cater for unforeseen/emergency high volumes. Leaks or spills should trigger an immediate incident response. Maximise the use of Bord and Pillar mining. Target water quality criteria should be set for watercourses and compliance ensured. Non-compliance should trigger incidents requiring immediate corrective action | 3 | Level 4 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | | Exemptions from GNR 704 | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | These activities could result in the deterioration of water quality during the operational phase. | Level 5 Risk | Moderate | Prevent the deterioration of water quality | All infrastructure that can cause pollution of water resources should be located within the dirty water area of the mine. Dirty water should be captured and stored - it may not be released. Dirty water should be re-used for within the mine as far as possible. | 3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | Subsidence or decant resulting in contamination (acidification, salinisation) of surface water with mine water, resulting in the loss of aquatic species and biodiversity | Level 5 Risk | High | Prevent surface subsidence under wetlands | Maximise the use of Bord and Pillar mining. Pillar extraction should not coincide with delineated wetlands or watercourses, especially those rated as sensitive or near-pristine (such as the Bankspruit and its tributaries and associated wetlands) | 3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | These activities could result in the deterioration of water quality during the operational phase. | Level 5 Risk | Moderate | Prevent the deterioration of water quality | All infrastructure that can cause pollution of water resources should be located within the dirty water area of the mine. Dirty water should be captured and stored - it may not be released. | 3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | Pollution of surface water | Level 4 Risk | Low | Minimise contamination | All infrastructure that can cause pollution of water resources should be located within the dirty water area of the mine. Dirty water should be captured and stored - it may not be released. Dirty water should be used for dust suppression within the mine only. Vehicles should be regularly washed at appropriate facilities to reduce transport of coal dust. | 3 | Level 4 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |

| OPERATIONAL PHASE - Management Measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | | |
|--|--|--|-----------------------|--|---|--|--|-----------------------|------------------------------|-----------------------|-------------------|---------------------|------------------|------------------------|--|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment | |
| 5. | | | | | | | | | | | | | | | |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | | | |
| NEMWA Section 19(3) and GN 718. | Operation of a sewage treatment plant could result in the deterioration of water quality. | Level 5 Risk | Moderate | Prevent the deterioration of water quality | All sewage should be treated to comply with the relevant standards. | 3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | MINE SHAFT AREAS | | | | | | | | |
| channelization of storm water (cut-off trench) | Erosion at storm water outlets | Level 6 Risk | Low | Prevent Erosion at storm water outlets | Ensure erosion prevention measures are present at storm water outlets. Erosion at storm water outlets are vegetated and that erosion nick-points are promptly rehabilitated or protected with rock mattresses | 1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| Shaft complex: water management system (i.e. dams and pipelines) | Contamination of surface water or groundwater as a result of overflow or seepage from pollution dams and stockpiles | Level 5 Risk | Medium | Prevent seepage or spills | Ensure storm water from stockpiles is caught by dirty water retention dams. Ensure overburden stockpile is capped, appropriately sloped and re-vegetated so as to prevent pooling and erosion. Erosion points should be immediately rehabilitated. Dam retaining walls should be regularly checked for safety and capacity (which should cater for unforeseen high volumes). Prevent leaking pipes by adequate maintenance and mend leaks promptly. | 3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| Construction and commissioning of the shaft complex at Shondoni | Contamination of surface water as a result of spills (e.g. hydrocarbons, sewage) | Level 6 Risk | Low | Prevent spills and emergency preparedness | Clean and dirty water must be separated. No dirty water to be discharged. Spills should be prevented as far as possible (e.g. vehicle maintenance, oil traps, bunding, appropriate storage and disposal). An emergency preparedness plan should be prepared and should include a system of incident reporting that requires immediate follow-up action. Spill kits should be available and accessible to all construction staff at all times. | 3 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| Shaft complex: water management system (i.e. dams and pipelines) | Loss of sensitive taxa and biodiversity | Level 5 Risk | Medium | Prevent a decline in water quality in streams | Apply mitigation for spills, seepage and leaks. Conduct regular biomonitoring and water quality monitoring (as recommended) in watercourses using baseline data as a point of reference. Recommendations by specialists in the biomonitoring reports should be considered incidents that trigger immediate corrective action | 3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | | | |
| Dewatering - leaks/spills/discharge | Acidification and salinisation (especially by sulphates) of surface water | Level 4 Risk | LOW | Prevent contamination of surface water with mine water | Ensure that pipeline leaks are prevented and properly maintained. Mine water treatment facilities should be well maintained and capacity should cater for unforeseen/emergency high volumes. Leaks or spills should trigger an immediate incident response. Maximise the use of Bord and Pillar mining. Target water quality criteria should be set for watercourses and compliance ensured. Non-compliance should trigger incidents requiring immediate corrective action | 3 | Level 4 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| Underground mining | Acid Mine Drainage: increasing acidification and salinisation of surface and ground water | Level 4 Risk | Low-High | Prevent contamination of surface water with mine water | Avoid undermining the slimes dam. Maximise the use of Bord and Pillar mining. Pillar extraction should not coincide with wetlands or watercourses, especially those rated as sensitive or near-pristine (such as the Bankspruit and its tributaries); Ensure water treatment and pumping facilities are adequately maintained and have adequate capacity | 3 | Level 4 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| Subsidence | Undermining of wetlands could result in wetland loss and degradation where surface subsidence occurs. Fractures in the strata underlying the wetlands could result in loss of surface water to groundwater, leading to desiccation of wetlands and changes in species composition. | Level 5 Risk | High | Prevent loss of wetlands due to surface subsidence | Ideally no surface subsidence should be allowed to take place, especially not underneath the floodplain wetlands and larger valley bottom wetlands. The mine plan/mining method should be adjusted accordingly, if the potential exist for the wetland areas to be adversely affected. | 3 | Level 5 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| Decreased base flows and increased channelization of watercourses | Loss of habitats and wetland function | Level 4 Risk | High | Prevent loss of habitats | Avoid development/mining/ crossings adjacent/under/across highly sensitive river systems, such as within the Bankspruit system. Stream crossings should be maintained by removing obstructions that may constrict flows and increase erosive forces. Rehabilitation of eroded reaches, particularly floodplains with associated oxbow lakes, should be rehabilitated to stem channel formation and improve floodplain integrity. A wetland rehabilitation plan should be compiled by a wetland specialist and implemented accordingly if the wetland has been adversely affected. | 3 | Level 4 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| Contamination by mining water (spills/subsidence/seepage) | Loss of sensitive taxa and biodiversity | Level 4 Risk | Medium | Prevent loss of biodiversity | Avoid development/mining/ crossings adjacent/under/across highly sensitive river systems, such as within the Bankspruit system. The Bankspruit and its tributaries should be conserved as far as possible. No pillar extraction should be undertaken within this catchment or at least not under Bankspruit tributaries. Apply mitigation for spills, seepage and leaks. Conduct regular biomonitoring and water quality monitoring (as recommended) in watercourses using baseline data as a point of reference. Recommendations by specialists in the biomonitoring reports should be considered incidents that trigger immediate corrective action | 3 | Level 4 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | CONVEYOR BELT ROUTE | | | | | | | | |
| Coal spills/coal dust | Pollution of surface water | Level 4 Risk | Low | Prevent spills and emergency preparedness | Dirty side of conveyor to face up at all times. The belt must be fully enclosed at stream/wetland crossings, extending beyond wetland outer boundary. These enclosed sections should be | 4 | Level 4 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |

| OPERATIONAL PHASE - Management Measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|---|--|-----------------------|---|---|--|--|-----------------------|------------------------------|-----------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| | | | | | regularly inspected to ensure no spillage. Roads should be sprayed to control dust and vehicles regularly washed at appropriate facilities to reduce transport of coal dust. | | | | | | | | | |
| Coal spills/coal dust | Loss of sensitive taxa and biodiversity | Level 5 Risk | Medium | Prevent loss of biodiversity | Apply mitigation for spills, as outlined above. conduct regular biomonitoring and water quality monitoring (as recommended) in watercourses using baseline data as a point of reference. Recommendations by specialists in the biomonitoring reports should be considered incidents that trigger immediate corrective action. | 4 | Level 4 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Stream Crossings | Erosion and sedimentation | Level 5 Risk | Low | Prevent erosion | Stream crossings should be maintained by regularly removing obstructions that may constrict flows and increase erosive forces. Eroded areas should be rehabilitated to prevent bank collapse. | 2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Pipeline leaks/spills | Acidification of surface water as a result of leaks/ spills of pumped mine water en route to treatment facility | Level 4 Risk | LOW | Prevent spills and emergency preparedness | The pipeline must be fully enclosed at stream/wetland crossings, extending beyond wetland outer boundary. These enclosed sections should be regularly inspected to ensure no spillage. An emergency preparedness plan should be compiled to address pipeline leaks en route to the mine water treatment facility and should include measures to avoid contamination of water courses. | 6 | Level 4 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| conveyor route | Invasion by alien vegetation | Level 4 Risk | Medium | Manage invasive alien species | Compile and implement an alien eradication and management plan and programme applicable throughout all phases of the development | 2 | Level 4 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Activity Description | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
| Activity Description | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Air Quality | | Air Quality | | | | | Air Quality | | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | | |
| Taking water from a water resource - Section 21 (a). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Disposing of waste in a manner which may | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |

| OPERATIONAL PHASE - Management Measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|-----------------------------------|--|------------------------------|--|---|---|------------------------------------|--|------------------------------|-----------------------|--------------------------|----------------------------|-------------------------|-------------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| detrimentally impact on a water resource - Section 21 (g). | | | | | | | | | | | | | | |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | | Exemptions from GNR 704 | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | |
| NEMWA Section 19(3) and GN 718. | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | | MINE SHAFT AREAS | | | | | | |
| None | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | |
| Increased extraction of the No. 4 Coal seam. | | | | | | | | | | | | | | |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | | CONVEYOR BELT ROUTE | | | | | | |
| Operation of the conveyor | | Level 6 Risk | LOW | To reduce dust from the coal conveyor belt | Coal transported on the conveyor must have the appropriate moisture content to reduce all dust emissions to zero. | C3 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Activity Description | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
| Impact Identification/Description | | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Noise | | | | | Noise | | | Noise | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | | Level 6 Risk | LOW | The low impact does not require any mitigation | None | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | | Level 6 Risk | LOW | The low impact does not require any mitigation | None | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | | Level 6 Risk | LOW | The low impact does not require any mitigation | None | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Excavation for Coal Conveyor Pedestal for | | Level 6 Risk | LOW | The low impact does not | None | C2 | Level 6 Risk | Environmental | During the | Part of | Opex | Operating | Bi- | Annual |

| OPERATIONAL PHASE - Management Measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|---|--|-----------------------|--|-----------------------------|--|-----------------------------|--|------------------------------|-----------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | activities. | Risk | | require any mitigation | | | | Manager | operational phase | mining costs. | | funds. | annually. | |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Localized Noise caused by operational activities. | Level 6 Risk | LOW | The low impact does not require any mitigation | None | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Localized Noise caused by operational activities. | Level 6 Risk | LOW | The low impact does not require any mitigation | None | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | Localized Noise caused by operational activities. | Level 6 Risk | LOW | The low impact does not require any mitigation | None | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Localized Noise caused by operational activities. | Level 6 Risk | LOW | The low impact does not require any mitigation | None | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Localized Noise caused by operational activities. | Level 6 Risk | LOW | The low impact does not require any mitigation | None | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | |
| Taking water from a water resource - Section 21 (a). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | | Exemptions from GNR 704 | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |

| OPERATIONAL PHASE - Management Measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | | |
|---|--|---|-----------------------|----------------------------------|-----------------------------|--|-----------------------------|---|------------------------------|-----------------------|-------------------|---------------------|------------------|------------------------|---|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment | |
| whichever is the greatest - Regulation 4(b). | | | | | | | | | | | | | | | |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | | |
| NEMWA Section 19(3) and GN 718. | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | | MINE SHAFT AREAS | | | | | | | |
| Surface Ventilation Fans | Fan noise disturbance at night - Chicken Farm only | Level 5 Risk | MED | Reduce fan noise at source | | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | | |
| N/A | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | | CONVEYOR BELT ROUTE | | | | | | | |
| Conveyor operation | Conveyor noise at night | Level 4 Risk | MED | Reduce conveyor noise at source | | C2 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Bi-annually. | Annual | |
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment | |
| Visuals | | Visuals | | | | | | Visuals | | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Operation of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |
| Operation of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | | |
| Operation of a Double Circuit 132 kV | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |

| OPERATIONAL PHASE - Management Measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|---|---|-----------------------|---|---|--|---|-----------------------|------------------------------|-----------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | | | | | | | | | | | | | | |
| Operation of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | | |
| Taking water from a water resource - Section 21 (a). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | Exemptions from GNR 704 | | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the Operation of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | | |
| Not Applicable | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | MINE SHAFT AREAS | | | | | | | |
| Shondoni Shaft Operation | Highly visible from R547; has impact on short to medium range views on road users | Level 6 Risk | Med. | Reduce short range visibility of shaft area | Planting of trees to use for screening purposes | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Annual | Annual |
| | Visibility impact for long range views from | Level 6 | High | None Available | None Available | C1 | Level 6 Risk | Environmental | During the | Part of | Opex | Operating | Annual | Annual |

| OPERATIONAL PHASE - Management Measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|---|---|-----------------------|---|---|--|---|-----------------------|------------------------------|-----------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| | east | Risk | | | | | | Manager | operational phase | mining costs. | | operating funds. | | |
| | Alterations to Landscape and Visual Character (Morphology & Topography) | Level 6 Risk | High | Reduce contrast to surrounding environment | Use natural tones that blend in with environment surrounding shaft facilities | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Annual | Annual |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | | |
| None. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | CONVEYOR BELT ROUTE | | | | | | | |
| Operation of Conveyor Belt | Highly visible from R547 and Brendan Village; has impact on short to medium range views on road users and residents | Level 5 Risk | Med. | Reduce short range visibility of conveyor belt | Planting of trees to use for screening purposes | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Annual | Annual |
| | Visibility impact for long range views | Level 6 Risk | High | None Available | None Available | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Annual | Annual |
| | Visibility and Visual Exposure Impact on road users at road-crossings | Level 6 Risk | Low | Reduce short range visibility of conveyor route | Take conveyor belt underneath road to make it less visible | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Annual | Annual |
| | Visual Exposure impact for road users of R547 as well as Brendan Village residents | Level 5 Risk | High | Reduce short range visual Exposure of conveyor belt | Planting of trees to use for screening purposes | C1 | Level 6 Risk | Environmental Manager | During the operational phase | Part of mining costs. | Opex | Operating funds. | Annual | Annual |
| Heritage | | Heritage | | | | | Heritage | | | | | | | |
| Only Construction phase applicable | | Only Construction phase applicable | | | | | Only Construction phase applicable | | | | | | | |
| Socio-Economic | | Socio-Economic | | | | | Socio-Economic | | | | | | | |
| Please refer to Sasol Shondoni Social and Labour Plan | | Please refer to Sasol Shondoni Social and Labour Plan | | | | | Please refer to Sasol Shondoni Social and Labour Plan | | | | | | | |

7.3.4 Decommissioning and Closure Phase Management Measure Tables

| DECOMMISSIONING PHASE – Management measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|-----------------------------------|---|-----------------------|----------------------------------|-----------------------------|--|---|--------------------|---------------|----------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Topography | | Topography | | | | | Topography | | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | | |
| Taking water from a water resource - Section 21 (a). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |

| DECOMMISSIONING PHASE – Management measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | | |
|---|--|--|-----------------------|--|--|--|-----------------------------|--|--------------------------|-------------------------------|-----------------------|----------------------|------------------|------------------------|---|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment | |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | | Exemptions from GNR 704 | | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | | |
| NEMWA Section 19(3) and GN 718. | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | | MINE SHAFT AREAS | | | | | | | |
| Decommissioning of Shondoni shaft area | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| All other remaining operational shafts (Main Shaft, West Shaft and Ithembaletu Shaft) and decommissioned shafts (North Shaft and North-West Shaft). | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | | |
| Areas of the mine where surface subsidence can still take place after mining activities have stopped. | Residual pillar collapse that can lead to further surface subsidence. | Level 6 | HIGH | Monitor all increased extraction areas for surface subsidence | If surface subsidence take place, rehabilitate the surface area to pre-mining topographical conditions, as per the Sasol Mining Standard Operating Procedure for subsidence. | ~ | Level 6 | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual | |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | | CONVEYOR BELT ROUTE | | | | | | | |
| Not Applicable | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | | |
| Soils and Land Capability | | Soils and Land Capability | | | | | | Soils and Land Capability | | | | | | | |
| No Management measures specified for the Decommissioning and Closure Phase | | No Management measures specified for the Decommissioning and Closure Phase | | | | | | No Management measures specified for the Decommissioning and Closure Phase | | | | | | | |
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment | |
| Ground Water | | Ground Water | | | | | | Ground Water | | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | The decommissioning of a 15 000t ROM coal stockpile area at Shondoni Shaft. Residual seepage from the stockpile footprint area can | Level 6 Risk | LOW | To prevent the residual seepage of contaminated water from the ROM | The ROM stockpile footprint must be rehabilitated to pre-mining surface- and topographical conditions. | C1 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual | |

| DECOMMISSIONING PHASE – Management measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|---|--|-----------------------|--|--|--|-----------------------------|--|--------------------------|-------------------------------|-----------------------|----------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| | lead to further ground water pollution. | | | stockpile entering the underlying aquifer units. | | | | | | | | | | |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | The Conveyor Pedestal will not intersect ground water, so no impact will take place during decommissioning of the infrastructure. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | The decommissioning of the Storm Water Pollution Control Dam (SWPCD) footprint. | Level 5 Risk | LOW | To prevent the residual seepage of contaminated water from the Storm Water Pollution Control Dam (SWPCD) footprint entering the underlying aquifer units. | Prevent residual seepages and spillages of polluted water from the SWPCD footprint by rehabilitating the surface area to pre-mining surface- and topographical conditions. | C2 | Level 5 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | The Conveyor Pedestal will not intersect ground water, so no impact will take place during decommissioning of the infrastructure. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | The decommissioning of diesel fuel storage tanks can lead to residual ground water pollution. | Level 6 Risk | LOW | Ensure that the diesel tanks and associated infrastructure is empty when decommissioning, to prevent the leakage of any diesel spill away from the bunker footprint. | All residual spillages must be captured inside the footprint areas before any spillage to the surrounding environment takes place. | C2 | Level 6 Risk | Fuel Contractor | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | The decommissioning of the Overhead Power line will not intersect ground water, so no impact will take place. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | The decommissioning of a coal conveyor belt will not intersect ground water, so no impact will take place. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | This activity only refers to surface disturbance. Since no ground water is intersected, no impact will take place. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | |
| Taking water from a water resource - Section 21 (a). | Not Applicable, since no water will be pumped to surface during the decommissioning phase. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | Not Applicable, since no water will be captured from any ROM stock piles (decommissioned). | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | Not Applicable, since no water will be moved around for decommissioning purposes. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | | Exemptions from GNR 704 | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |

| DECOMMISSIONING PHASE – Management measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|--|--|--|-----------------------|---|---|--|--|-----------------------|--------------------------|-------------------------------|-----------------------|----------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | | | | | | | | | | | | | | |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | | |
| NEMWA Section 19(3) and GN 718. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | MINE SHAFT AREAS | | | | | | | |
| Closing the shaft complex at Shondoni. | Localized depletion of ground water (if it occurred during the operational phase) will be reversed, and ground water levels will start to return to pre-mining ground water levels. | Level 6 Risk | LOW | The return of ground water levels to pre-mining levels is a positive impact. | None | C1 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| All other remaining operational shafts (Main Shaft, West Shaft and Ithembalethu Shaft) and decommissioned shafts (North Shaft and North-West Shaft). | Localized depletion of ground water (if it occurred during the operational phase) will be reversed, and ground water levels will start to return to pre-mining ground water levels. | Level 6 Risk | LOW | The return of ground water levels to pre-mining levels is a positive impact. | None | C1 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | | |
| The continuous influx of groundwater recharge into mine workings due to bord and pillar mining of the No's 2 and 4 coal seam, during the decommissioning phase. | Ground water recharge due to operational phase mining activities will continue during the decommissioning phase. The impact will persist well beyond the post-closure phase and will be addressed in that section. | Level 5 Risk | LOW | Manage the influx of normal ground water recharge as part of the closure phase water balance. | Refer to mitigation measures proposed for the closure phase. | C2 | Level 5 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| The increased influx of groundwater into mine workings due to pillar extraction activities of the No.4 coal seam, during the decommissioning phase. | Ground water recharge due to operational phase mining activities will continue during the decommissioning phase. The impact will persist well beyond the post-closure phase and will be addressed in that section. | Level 5 Risk | LOW | Manage the influx of additional ground water make due to pillar extraction activities as part of the closure phase water balance. | Refer to mitigation measures proposed for the closure phase. | C2 | Level 5 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | CONVEYOR BELT ROUTE | | | | | | | |
| Decommissioning of the Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area). | The decommissioning of the coal conveyor belt will not intersect/impact ground water resources, so no impact will take place. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Surface Water | | Surface Water | | | | | Surface Water | | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Impact on water quality: Removal of surface infrastructure, with potential increase in suspended solids in runoff from the site. In most instances, removal of infrastructure will have positive | Level 6 Risk | Low | Prevent contamination of surface water runoff from the shaft area construction. | - Dirty water dams will remain in place during decommissioning and beyond, so that infrastructure will be contained until fully rehabilitated. - Monitor surface water quality upstream and downstream of construction areas | C1 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |

| DECOMMISSIONING PHASE – Management measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|---|--|-----------------------|--|--|--|-----------------------------|--|--------------------------|-------------------------------|-----------------------|----------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| | impact in terms of storm water management. | | | | - If erosion is evident or water quality monitoring indicates increased suspended solids, water management at construction areas will be reviewed | | | | | | | | | |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Impact on water quality: Removal of surface infrastructure, with potential increase in suspended solids in runoff from the site. In most instances, removal of infrastructure will have positive impact in terms of storm water management. | Level 6 Risk | Low | Prevent contamination of surface water runoff from the shaft area construction. | - Monitor surface water quality upstream and downstream of construction areas - If erosion is evident or water quality monitoring indicates increased suspended solids, water management at construction areas will be reviewed | C1 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | Impact on water quality: The PCD will remain in place post closure and will therefore contain any impacts on runoff water resulting from the decommissioning and removal of infrastructure during this phase. No impact expected. | Level 6 Risk | Low | Prevent contamination of surface water runoff from the shaft area decommissioning. | - None required | C1 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | Construction phase impact | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | Operational phase impact | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | Impact on water quality: Removal of surface infrastructure, with potential increase in suspended solids in runoff from the site. In most instances, removal of infrastructure will have positive impact in terms of storm water management. | Level 6 Risk | Low | Prevent contamination of surface water runoff from the shaft area construction. | - Monitor surface water quality upstream and downstream of construction areas - If erosion is evident or water quality monitoring indicates increased suspended solids, water management at construction areas will be reviewed | C1 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | Impact on water quality: Removal of surface infrastructure, with potential increase in suspended solids in runoff from the site. In most instances, removal of infrastructure will have positive impact in terms of storm water management. | Level 6 Risk | Low | Prevent contamination of surface water runoff from the shaft area construction. | - Dirty water dams will remain in place during decommissioning and beyond, so that infrastructure will be contained until fully rehabilitated. - Monitor surface water quality upstream and downstream of construction areas - If erosion is evident or water quality monitoring indicates increased suspended solids, water management at construction areas will be reviewed | C1 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | |
| Taking water from a water resource - Section 21 (a). | Impact on groundwater yield, not a surface water impact. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | Impact on water quality: Removal of surface infrastructure, with potential increase in suspended solids in runoff from the site. In most instances, removal of infrastructure will have positive impact in terms of storm water management. | Level 6 Risk | Low | Prevent contamination of surface water runoff from the shaft area construction. | - Monitor surface water quality upstream and downstream of construction areas - If erosion is evident or water quality monitoring indicates increased suspended solids, water management at construction areas will be reviewed | C1 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | Impact on water quality: The PCD will remain in place post closure and will therefore contain any impacts on runoff water resulting from the decommissioning and removal of infrastructure during this phase. No impact expected. | Level 6 Risk | Low | Prevent contamination of surface water runoff from the shaft area decommissioning. | - None required | C1 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |

| DECOMMISSIONING PHASE – Management measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|---|---|-----------------------|--|---|--|-----------------------------|---|--------------------------|-------------------------------|-----------------------|----------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | Impact on water quality: Removal of surface infrastructure, with potential increase in suspended solids in runoff from the site. In most instances, removal of infrastructure will have positive impact in terms of storm water management. | Level 6 Risk | Low | Prevent contamination of surface water runoff from the shaft area construction. | - Monitor surface water quality upstream and downstream of construction areas - If erosion is evident or water quality monitoring indicates increased suspended solids, water management at construction areas will be reviewed | C1 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | Operational phase impact | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | | Exemptions from GNR 704 | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | Impact on catchment yield: Decommissioning will not significantly change the operational loss in yield. | Level 5 Risk | High | Minimise the recharge of surface water to the underground mining | - No high extraction mining will take place under watercourses. - Conservative pillar safety factors will be used in bord & pillar areas, particularly where watercourses are undermined. Surface above stooped areas will be inspected to ensure it remains free draining. - Where necessary, civil works such as cutting of drains will be undertaken to restore free drainage at areas of subsidence. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | |
| NEMWA Section 19(3) and GN 718. | | | | | | | | | | | | | | |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | | MINE SHAFT AREAS | | | | | | |
| Coal handling infrastructure (shaft, bunker workshops, offices and stockpiles) | Impact on water quality: Removal of surface infrastructure, with potential increase in suspended solids in runoff from the site. In most instances, removal of infrastructure will have positive impact in terms of storm water management. | Level 6 Risk | Low | Prevent contamination of surface water runoff from the shaft area construction. | - Dirty water dams will remain in place during decommissioning and beyond, so that infrastructure will be contained until fully rehabilitated. - Monitor surface water quality upstream and downstream of construction areas - If erosion is evident or water quality monitoring indicates increased suspended solids, water management at construction areas will be reviewed | C1 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Water management infrastructure | Impact on water quality: The PCD will remain in place post closure and will therefore contain any impacts on runoff water resulting from the decommissioning and removal of infrastructure during this phase. No impact expected. | Level 6 Risk | Low | Prevent contamination of surface water runoff from the shaft area decommissioning. | - None required | C1 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | |
| Underground mining | Impact on catchment yield: Decommissioning will not significantly change the operational loss in yield. | Level 5 Risk | High | Minimise the recharge of surface water to the underground mining | - Surface above stooped areas will be inspected to ensure it remains free draining. - Where necessary, civil works such as cutting of drains will be undertaken to restore free drainage at areas of subsidence. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Potential mine water discharge | Impact on water quality: Once mining and related dewatering ceases, water levels will begin to recover. Levels not expected to reach decant levels until 80 to 100 years after mining ceases, well after | Level 1 Risk | Low | Prevent uncontrolled decant to the environment | - Monitoring of water levels and water quality in the mine - Calibration of water balance model to enhance prediction on timing of intervention measures - Prior to construction of any treatment plant, necessary EIA studies and licenses applications will be made. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |

| DECOMMISSIONING PHASE – Management measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|---|--|-----------------------|---|--|--|--|-----------------------|--------------------------|-------------------------------|-----------------------|----------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| decommissioning. Unlikely that water from the mining area will affect the environment during decommissioning | | | | | | | | | | | | | | |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | CONVEYOR BELT ROUTE | | | | | | | |
| Decommissioning and dismantling of conveyor | Impact on water quality: Removal of surface infrastructure, with potential increase in suspended solids in runoff from the site. In most instances, removal of infrastructure will have positive impact in terms of storm water management. | Level 6 Risk | Low | Prevent contamination of surface water runoff from the shaft area construction. | - Monitor surface water quality upstream and downstream of construction areas - If erosion is evident or water quality monitoring indicates increased suspended solids, water management at construction areas will be reviewed | C1 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| DECOMMISSIONING PHASE – Management Measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Plant Life | | Plant Life | | | | | Plant Life | | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate sensitive areas and avoid these. | C3 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate sensitive areas and avoid these. | C3 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate sensitive areas and avoid these. | C3 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate sensitive areas and avoid these. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate sensitive areas and avoid these. | C3 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate sensitive areas and avoid these. | C3 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate sensitive areas and avoid these. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate sensitive areas and avoid these. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate sensitive areas and avoid these. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | alien plant invasions, habitat deterioration, change in physical abiotic conditions. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Demarcate sensitive areas and avoid these, control dust. | C3 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | alien plant invasions, habitat deterioration, change in physical abiotic conditions. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Demarcate sensitive areas and avoid these, control dust. | C3 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | alien plant invasions, habitat deterioration, change in physical abiotic conditions. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Demarcate sensitive areas and avoid these, control dust. | C3 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | | |
| Taking water from a water resource - Section 21 (a). | Change in physical abiotic conditions. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Demarcate sensitive areas and avoid these, prevent water contamination | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | Alien plant invasions, habitat deterioration, change in physical abiotic conditions. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Demarcate sensitive areas and avoid these, prevent water contamination | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |

| DECOMMISSIONING PHASE – Management measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|---|---|------------------------------|---|--|--|-----------------------------|---|--------------------------|-------------------------------|-----------------------|----------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | Change in physical abiotic conditions. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Demarcate sensitive areas and avoid these, prevent water contamination | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | Change in physical abiotic conditions. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Demarcate sensitive areas and avoid these, prevent water contamination | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (j). | Alien plant invasions, habitat deterioration, change in physical abiotic conditions. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Demarcate sensitive areas and avoid these, prevent water contamination | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | Change in physical abiotic conditions. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Demarcate sensitive areas and avoid these, prevent water contamination | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | | Exemptions from GNR 704 | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate sensitive areas and avoid these, control dust. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate sensitive areas and avoid these, control dust. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate sensitive areas and avoid these, control dust. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate sensitive areas and avoid these, control dust. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | |
| NEMWA Section 19(3) and GN 718. | None. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | | MINE SHAFT AREAS | | | | | | |
| Decommissioning of Shondoni shaft area | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation, change in physical abiotic conditions. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Demarcate sensitive areas and avoid them, control dust. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| All other remaining operational shafts (Main Shaft, West Shaft and Ithembalethu Shaft) and decommissioned shafts (North Shaft and North-West Shaft). | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation, change in physical abiotic conditions. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Demarcate sensitive areas and avoid them, control dust. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | |
| None. | None. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | | CONVEYOR BELT ROUTE | | | | | | |
| Decommissioning of conveyor | Habitat destruction | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Demarcate sensitive areas and avoid these, control dust. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| | | Risk Level Before | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After | Risk Level After | EMP COMPONENTS | | | | | | |

| DECOMMISSIONING PHASE – Management measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|--|---|-----------------------|---|--|--|---|-----------------------|--------------------------|-------------------------------|-----------------------|-----------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Activity Description | Impact Identification/Description | Mitigation | | | | Mitigation - C Number | Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Animal Life | | Animal Life | | | | | Animal Life | | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Habitat Loss, Habitat Disturbance and Loss of Red Data List fauna: The clearing/removal/demolition of infrastructure will cause habitat loss, accidental death Red data List fauna, and will leave cleared areas which may become populated with exotic, pioneer plant species, thereby preventing the re-establishment of the natural vegetation and habitat for fauna. | Level 4 Risk | medium | Prevent unnecessary vegetation loss, habitat disturbance and minimise the likelihood of loss of fauna. Ensure the re-establishment of natural vegetation of a similar or improved composition and condition to that present prior to commencement of the initial construction activities. | Remove all exotic and declared weed species from areas affected by the mining activities. Consult a suitably qualified botanist to determine the best method for re-establishing the naturally occurring vegetation communities. All demolition areas should be fenced and demolition activities should be limited to within the fenced areas. Activities within the 1:100 year flood line or within wetland areas should be carefully controlled to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. All waste materials generated during the decommissioning of the mine should be removed from site to a suitable disposal facility. | C3 | Level 5 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs. | Annual | Annual |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Habitat Loss, Habitat Disturbance and Loss of Red Data List fauna: The clearing/removal/demolition of infrastructure will cause habitat loss, accidental death Red data List fauna, and will leave cleared areas which may become populated with exotic, pioneer plant species, thereby preventing the re-establishment of the natural vegetation and habitat for fauna. | Level 5 Risk | | Prevent unnecessary vegetation loss, habitat disturbance and minimise the likelihood of loss of fauna. Ensure the re-establishment of natural vegetation of a similar or improved composition and condition to that present prior to commencement of the initial construction activities. | Remove all exotic and declared weed species from areas affected by the mining activities. Consult a suitably qualified botanist to determine the best method for re-establishing the naturally occurring vegetation communities. All demolition areas should be fenced and demolition activities should be limited to within the fenced areas. Activities within the 1:100 year flood line or within wetland areas should be carefully controlled to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. All waste materials generated during the decommissioning of the mine should be removed from site to a suitable disposal facility. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs. | Annual | Annual |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | Habitat Loss, Habitat Disturbance and Loss of Red Data List fauna: The clearing/removal/demolition of infrastructure will cause habitat loss, accidental death Red data List fauna, and will leave cleared areas which may become populated with exotic, pioneer plant species, thereby preventing the re-establishment of the natural vegetation and habitat for fauna. | Level 4 Risk | medium | Prevent unnecessary vegetation loss, habitat disturbance and minimise the likelihood of loss of fauna. Ensure the re-establishment of natural vegetation of a similar or improved composition and condition to that present prior to commencement of the initial construction activities. | Remove all exotic and declared weed species from areas affected by the mining activities. Consult a suitably qualified botanist to determine the best method for re-establishing the naturally occurring vegetation communities. All demolition areas should be fenced and demolition activities should be limited to within the fenced areas. Activities within the 1:100 year flood line or within wetland areas should be carefully controlled to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. All waste materials generated during the decommissioning of the mine should be removed from site to a suitable disposal facility. | C3 | Level 5 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs. | Annual | Annual |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | Habitat Loss, Habitat Disturbance and Loss of Red Data List fauna: The clearing/removal/demolition of infrastructure will cause habitat loss, accidental death Red data List fauna, and will leave cleared areas which may become populated with exotic, pioneer plant species, thereby preventing the re-establishment of the natural vegetation and habitat for fauna. | Level 5 Risk | medium | Prevent unnecessary vegetation loss, habitat disturbance and minimise the likelihood of loss of fauna. Ensure the re-establishment of natural vegetation of a similar or improved composition and condition to that present prior to commencement of the initial construction activities. | Remove all exotic and declared weed species from areas affected by the mining activities. Consult a suitably qualified botanist to determine the best method for re-establishing the naturally occurring vegetation communities. All demolition areas should be fenced and demolition activities should be limited to within the fenced areas. Activities within the 1:100 year flood line or within wetland areas should be carefully controlled to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. All waste materials generated during the decommissioning of the mine | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs. | Annual | Annual |

| DECOMMISSIONING PHASE – Management measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|--|------------------------------|-----------------------|---|--|--|-----------------------------|-----------------------|--------------------------|-------------------------------|-----------------------|----------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Habitat Loss, Habitat Disturbance and Loss of Red Data List fauna: The clearing/removal/demolition of infrastructure will cause habitat loss, accidental death Red data List fauna, and will leave cleared areas which may become populated with exotic, pioneer plant species, thereby preventing the re-establishment of the natural vegetation and habitat for fauna. | Level 5 Risk | medium | Prevent unnecessary vegetation loss, habitat disturbance and minimise the likelihood of loss of fauna. Ensure the re-establishment of natural vegetation of a similar or improved composition and condition to that present prior to commencement of the initial construction activities. | Remove all exotic and declared weed species from areas affected by the mining activities. Consult a suitably qualified botanist to determine the best method for re-establishing the naturally occurring vegetation communities. All demolition areas should be fenced and demolition activities should be limited to within the fenced areas. Activities within the 1:100 year flood line or within wetland areas should be carefully controlled to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. All waste materials generated during the decommissioning of the mine should be removed from site to a suitable disposal facility. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Habitat Loss, Habitat Disturbance and Loss of Red Data List fauna: The clearing/removal/demolition of infrastructure will cause habitat loss, accidental death Red data List fauna, and will leave cleared areas which may become populated with exotic, pioneer plant species, thereby preventing the re-establishment of the natural vegetation and habitat for fauna. | Level 4 Risk | medium | Prevent unnecessary vegetation loss, habitat disturbance and minimise the likelihood of loss of fauna. Ensure the re-establishment of natural vegetation of a similar or improved composition and condition to that present prior to commencement of the initial construction activities. | Remove all exotic and declared weed species from areas affected by the mining activities. Consult a suitably qualified botanist to determine the best method for re-establishing the naturally occurring vegetation communities. All demolition areas should be fenced and demolition activities should be limited to within the fenced areas. Activities within the 1:100 year flood line or within wetland areas should be carefully controlled to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. All waste materials generated during the decommissioning of the mine should be removed from site to a suitable disposal facility. | C3 | Level 5 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Habitat Loss, Habitat Disturbance and Loss of Red Data List fauna: The clearing/removal/demolition of infrastructure will cause habitat loss, accidental death Red data List fauna, and will leave cleared areas which may become populated with exotic, pioneer plant species, thereby preventing the re-establishment of the natural vegetation and habitat for fauna. | Level 5 Risk | medium | Prevent unnecessary vegetation loss, habitat disturbance and minimise the likelihood of loss of fauna. Ensure the re-establishment of natural vegetation of a similar or improved composition and condition to that present prior to commencement of the initial construction activities. | Remove all exotic and declared weed species from areas affected by the mining activities. Consult a suitably qualified botanist to determine the best method for re-establishing the naturally occurring vegetation communities. All demolition areas should be fenced and demolition activities should be limited to within the fenced areas. Activities within the 1:100 year flood line or within wetland areas should be carefully controlled to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. All waste materials generated during the decommissioning of the mine should be removed from site to a suitable disposal facility. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Habitat Loss, Habitat Disturbance and Loss of Red Data List fauna: The clearing/removal/demolition of infrastructure will cause habitat loss, accidental death Red data List fauna, and will leave cleared areas which may become populated with exotic, pioneer plant species, thereby preventing the re-establishment of the natural vegetation and habitat for fauna. | Level 4 Risk | medium | Prevent unnecessary vegetation loss, habitat disturbance and minimise the likelihood of loss of fauna. Ensure the re-establishment of natural vegetation of a similar or improved composition and condition to that present prior to commencement of the initial construction activities. | Remove all exotic and declared weed species from areas affected by the mining activities. Consult a suitably qualified botanist to determine the best method for re-establishing the naturally occurring vegetation communities. All demolition areas should be fenced and demolition activities should be limited to within the fenced areas. Activities within the 1:100 year flood line or within wetland areas should be carefully controlled to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. All waste materials generated during the decommissioning of the mine should be removed from site to a suitable disposal facility. | C3 | Level 5 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |

LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998):

LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES

LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES

| DECOMMISSIONING PHASE – Management measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|--|------------------------------|-----------------------|---|--|--|-----------------------------|-----------------------|--------------------------|-------------------------------|-----------------------|----------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| GN 387 ACTIVITIES | | | | | | | | | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | Habitat Loss, Habitat Disturbance and Loss of Red Data List fauna: The clearing/removal/demolition of infrastructure will cause habitat loss, accidental death Red data List fauna, and will leave cleared areas which may become populated with exotic, pioneer plant species, thereby preventing the re-establishment of the natural vegetation and habitat for fauna. | Level 4 Risk | medium | Prevent unnecessary vegetation loss, habitat disturbance and minimise the likelihood of loss of fauna. Ensure the re-establishment of natural vegetation of a similar or improved composition and condition to that present prior to commencement of the initial construction activities. | Remove all exotic and declared weed species from areas affected by the mining activities. Consult a suitably qualified botanist to determine the best method for re-establishing the naturally occurring vegetation communities. All demolition areas should be fenced and demolition activities should be limited to within the fenced areas. Activities within the 1:100 year flood line or within wetland areas should be carefully controlled to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. All waste materials generated during the decommissioning of the mine should be removed from site to a suitable disposal facility. | C3 | Level 5 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | Habitat Loss, Habitat Disturbance and Loss of Red Data List fauna: The clearing/removal/demolition of infrastructure will cause habitat loss, accidental death Red data List fauna, and will leave cleared areas which may become populated with exotic, pioneer plant species, thereby preventing the re-establishment of the natural vegetation and habitat for fauna. | Level 4 Risk | medium | Prevent unnecessary vegetation loss, habitat disturbance and minimise the likelihood of loss of fauna. Ensure the re-establishment of natural vegetation of a similar or improved composition and condition to that present prior to commencement of the initial construction activities. | Remove all exotic and declared weed species from areas affected by the mining activities. Consult a suitably qualified botanist to determine the best method for re-establishing the naturally occurring vegetation communities. All demolition areas should be fenced and demolition activities should be limited to within the fenced areas. Activities within the 1:100 year flood line or within wetland areas should be carefully controlled to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. All waste materials generated during the decommissioning of the mine should be removed from site to a suitable disposal facility. | C3 | Level 5 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | Habitat Loss, Habitat Disturbance and Loss of Red Data List fauna: The clearing/removal/demolition of infrastructure will cause habitat loss, accidental death Red data List fauna, and will leave cleared areas which may become populated with exotic, pioneer plant species, thereby preventing the re-establishment of the natural vegetation and habitat for fauna. | Level 4 Risk | medium | Prevent unnecessary vegetation loss, habitat disturbance and minimise the likelihood of loss of fauna. Ensure the re-establishment of natural vegetation of a similar or improved composition and condition to that present prior to commencement of the initial construction activities. | Remove all exotic and declared weed species from areas affected by the mining activities. Consult a suitably qualified botanist to determine the best method for re-establishing the naturally occurring vegetation communities. All demolition areas should be fenced and demolition activities should be limited to within the fenced areas. Activities within the 1:100 year flood line or within wetland areas should be carefully controlled to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. All waste materials generated during the decommissioning of the mine should be removed from site to a suitable disposal facility. | C3 | Level 5 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | | | | | | | | | |
| Taking water from a water resource - Section 21 (a). | | | | | | | | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | Habitat Loss, Habitat Disturbance and Loss of Red Data List fauna: The clearing/removal/demolition of infrastructure will cause habitat loss, accidental death Red data List fauna, and will leave cleared areas which may become populated with exotic, pioneer plant species, thereby preventing the re-establishment of the natural vegetation and habitat for fauna. | Level 4 Risk | medium | Prevent unnecessary vegetation loss, habitat disturbance and minimise the likelihood of loss of fauna. Ensure the re-establishment of natural vegetation of a similar or improved composition and condition to that present prior to commencement of the initial construction activities. | Remove all exotic and declared weed species from areas affected by the mining activities. Consult a suitably qualified botanist to determine the best method for re-establishing the naturally occurring vegetation communities. All demolition areas should be fenced and demolition activities should be limited to within the fenced areas. Activities within the 1:100 year flood line or within wetland areas should be carefully controlled to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. All waste materials generated during the decommissioning of the mine should be removed from site to a suitable disposal facility. | C3 | Level 5 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Discharging waste or water containing waste into a water resource through a pipe. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |

| DECOMMISSIONING PHASE – Management measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|--|--------------------------------|-----------------------|---|--|--|-----------------------------|--------------------------------|--------------------------|-------------------------------|-----------------------|----------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| canal, sewer, sea outfall or other conduit - Section 21 (f). | | | | | | | | | | | | | | |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | Habitat Loss, Habitat Disturbance and Loss of Red Data List fauna: The clearing/removal/demolition of infrastructure will cause habitat loss, accidental death Red data List fauna, and will leave cleared areas which may become populated with exotic, pioneer plant species, thereby preventing the re-establishment of the natural vegetation and habitat for fauna. | Level 4 Risk | medium | Prevent unnecessary vegetation loss, habitat disturbance and minimise the likelihood of loss of fauna. Ensure the re-establishment of natural vegetation of a similar or improved composition and condition to that present prior to commencement of the initial construction activities. | Remove all exotic and declared weed species from areas affected by the mining activities. Consult a suitably qualified botanist to determine the best method for re-establishing the naturally occurring vegetation communities. All demolition areas should be fenced and demolition activities should be limited to within the fenced areas. Activities within the 1:100 year flood line or within wetland areas should be carefully controlled to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. All waste materials generated during the decommissioning of the mine should be removed from site to a suitable disposal facility. | C3 | Level 5 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | | Exemptions from GNR 704 | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | Habitat Loss, Habitat Disturbance and Loss of Red Data List fauna: The clearing/removal/demolition of infrastructure will cause habitat loss, accidental death Red data List fauna, and will leave cleared areas which may become populated with exotic, pioneer plant species, thereby preventing the re-establishment of the natural vegetation and habitat for fauna. | Level 4 Risk | medium | Prevent unnecessary vegetation loss, habitat disturbance and minimise the likelihood of loss of fauna. Ensure the re-establishment of natural vegetation of a similar or improved composition and condition to that present prior to commencement of the initial construction activities. | Remove all exotic and declared weed species from areas affected by the mining activities. Consult a suitably qualified botanist to determine the best method for re-establishing the naturally occurring vegetation communities. All demolition areas should be fenced and demolition activities should be limited to within the fenced areas. Activities within the 1:100 year flood line or within wetland areas should be carefully controlled to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. All waste materials generated during the decommissioning of the mine should be removed from site to a suitable disposal facility. | C3 | Level 5 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | Habitat Loss, Habitat Disturbance and Loss of Red Data List fauna: The clearing/removal/demolition of infrastructure will cause habitat loss, accidental death Red data List fauna, and will leave cleared areas which may become populated with exotic, pioneer plant species, thereby preventing the re-establishment of the natural vegetation and habitat for fauna. | Level 4 Risk | medium | Prevent unnecessary vegetation loss, habitat disturbance and minimise the likelihood of loss of fauna. Ensure the re-establishment of natural vegetation of a similar or improved composition and condition to that present prior to commencement of the initial construction activities. | Remove all exotic and declared weed species from areas affected by the mining activities. Consult a suitably qualified botanist to determine the best method for re-establishing the naturally occurring vegetation communities. All demolition areas should be fenced and demolition activities should be limited to within the fenced areas. Activities within the 1:100 year flood line or within wetland areas should be carefully controlled to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. All waste materials generated during the decommissioning of the mine should be removed from site to a suitable disposal facility. | C3 | Level 5 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | Habitat Loss, Habitat Disturbance and Loss of Red Data List fauna: The clearing/removal/demolition of infrastructure will cause habitat loss, accidental death Red data List fauna, and will leave cleared areas which may become populated with exotic, pioneer plant species, thereby preventing the re-establishment of the natural vegetation and habitat for fauna. | Level 4 Risk | medium | Prevent unnecessary vegetation loss, habitat disturbance and minimise the likelihood of loss of fauna. Ensure the re-establishment of natural vegetation of a similar or improved composition and condition to that present prior to commencement of the initial construction activities. | Remove all exotic and declared weed species from areas affected by the mining activities. Consult a suitably qualified botanist to determine the best method for re-establishing the naturally occurring vegetation communities. All demolition areas should be fenced and demolition activities should be limited to within the fenced areas. Activities within the 1:100 year flood line or within wetland areas should be carefully controlled to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals | C3 | Level 5 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |

| DECOMMISSIONING PHASE – Management measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|--|---|-----------------------|---|--|--|---|-----------------------|--------------------------|-------------------------------|-----------------------|----------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| | | | | | encountered and the appropriate relocation sites. All waste materials generated during the decommissioning of the mine should be removed from site to a suitable disposal facility. | | | | | | | | | |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | Habitat Loss, Habitat Disturbance and Loss of Red Data List fauna: The clearing/removal/demolition of infrastructure will cause habitat loss, accidental death Red data List fauna, and will leave cleared areas which may become populated with exotic, pioneer plant species, thereby preventing the re-establishment of the natural vegetation and habitat for fauna. | Level 4 Risk | medium | Prevent unnecessary vegetation loss, habitat disturbance and minimise the likelihood of loss of fauna. Ensure the re-establishment of natural vegetation of a similar or improved composition and condition to that present prior to commencement of the initial construction activities. | Remove all exotic and declared weed species from areas affected by the mining activities. Consult a suitably qualified botanist to determine the best method for re-establishing the naturally occurring vegetation communities. All demolition areas should be fenced and demolition activities should be limited to within the fenced areas. Activities within the 1:100 year flood line or within wetland areas should be carefully controlled to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. All waste materials generated during the decommissioning of the mine should be removed from site to a suitable disposal facility. | C3 | Level 5 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | | |
| NEMWA Section 19(3) and GN 718. | | None | | | | | ~ | | | | | | | |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | MINE SHAFT AREAS | | | | | | | |
| Decommissioning of the Shaft Area Infrastructure | Habitat Disturbance | Level 4 Risk | medium | Prevent habitat disturbance | Remove all exotic and declared weed species from areas affected by the mining activities. Consult a suitably qualified botanist to determine the best method for re-establishing the naturally occurring vegetation communities. Activities within the 1:100 year flood line or within wetland areas should be carefully controlled to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. | C3 | Level 5 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Decommissioning of the Shaft Area Infrastructure | Habitat Loss | Level 4 Risk | medium | Prevent unnecessary vegetation loss | All demolition areas should be fenced and demolition activities should be limited to within the fenced areas. | C3 | Level 5 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Decommissioning of the Shaft Area Infrastructure | Loss of Red Data List fauna | Level 4 Risk | medium | Prevent the unnecessary death of fauna | An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | C3 | Level 5 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | | |
| None | | ~ | | | | | ~ | | | | | | | |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | CONVEYOR BELT ROUTE | | | | | | | |
| Decommissioning of the Conveyor Belt and the fenced servitude between the Shondoni Shaft Complex and the Middelbult Main Shaft Conveyor | Habitat Disturbance | Level 4 Risk | medium | Prevent habitat disturbance | Remove all exotic and declared weed species from areas affected by the mining activities. Consult a suitably qualified botanist to determine the best method for re-establishing the naturally occurring vegetation communities. Activities within the 1:100 year flood line or within wetland areas should be carefully controlled to prevent pollution, erosion or changes in the natural hydrology. No vehicle or equipment storage or maintenance areas should be located within wetland areas or within the 1:100 year flood line. | C3 | Level 5 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Decommissioning of the Conveyor Belt and the fenced servitude between the Shondoni Shaft Complex and the Middelbult Main Shaft Conveyor | Habitat Loss | Level 4 Risk | medium | Prevent unnecessary vegetation loss | All demolition areas should be fenced and demolition activities should be limited to within the fenced areas. | C3 | Level 5 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Decommissioning of the Conveyor Belt and the fenced servitude between the Shondoni Shaft Complex and the Middelbult Main Shaft Conveyor | Loss of Red Data List fauna | Level 4 Risk | medium | Prevent the unnecessary death of fauna | An environmental officer should be appointed at the outset of the mining project. Any animals encountered by mine personnel should be carefully and safely removed to an appropriate location after consultation with the environmental officer as to the proper means of handling any animals encountered and the appropriate relocation sites. | C3 | Level 5 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Wetlands | | Wetlands | | | | | Wetlands | | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Decommissioning of the stockpile will involve the removal of all infrastructure associated with the stockpile as well as the | Level 5 Risk | Moderate | Minimise transport of sediments and alien vegetation establishment. | Minimise the disturbance footprint during decommissioning. Rip compacted soils. Re-landscape soils to the natural landscape profile. Re-vegetate bare soils areas as soon as | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |

| DECOMMISSIONING PHASE – Management measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|--|--|-----------------------|---|--|--|-----------------------------|--|--------------------------|-------------------------------|-----------------------|----------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| | removal of contaminated soil (if any), and the landscaping of the footprint to the surrounding landscape profile. This will result in increased sediment transport into the wetlands and increased surface run-off. | | | | possible with indigenous species. Undertake regular alien vegetation surveys and remove all alien species. This will require long-term follow up. | | | | | | | | | |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Removal of the conveyor pedestal will result in similar impacts to its construction, namely increased sediment inputs to the Trichardtspruit, increased erosion risk, disturbance to the vegetation and an increase in alien vegetation. | Level 5 Risk | Moderate | Minimise transport of sediments and alien vegetation establishment. | Minimise the disturbance footprint during decommissioning. Rip compacted soils. Re-landscape soils to the natural landscape profile. Re-vegetate bare soils areas as soon as possible with indigenous species. Undertake regular alien vegetation surveys and remove all alien species. This will require long-term follow up. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | Decommissioning of the dams will involve the removal of all infrastructure associated with the dams as well as the removal of contaminated soil (if any), and the landscaping of the footprint to the surrounding landscape profile. This will result in increased sediment transport into the wetlands and increased surface run-off. | Level 5 Risk | Moderate | Minimise transport of sediments and alien vegetation establishment. | Minimise the disturbance footprint during decommissioning. Rip compacted soils. Re-landscape soils to the natural landscape profile. Re-vegetate bare soils areas as soon as possible with indigenous species. Undertake regular alien vegetation surveys and remove all alien species. This will require long-term follow up. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | Removal of the conveyor pedestal will result in similar impacts to its construction, namely increased sediment inputs to the Trichardtspruit, increased erosion risk, disturbance to the vegetation and an increase in alien vegetation. | Level 5 Risk | Moderate | Minimise transport of sediments and alien vegetation establishment. | Minimise the disturbance footprint during decommissioning. Rip compacted soils. Re-landscape soils to the natural landscape profile. Re-vegetate bare soils areas as soon as possible with indigenous species. Undertake regular alien vegetation surveys and remove all alien species. This will require long-term follow up. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Decommissioning of the tanks will involve the removal of all infrastructure associated with the tanks as well as the removal of contaminated soil (if any), and the landscaping of the footprint to the surrounding landscape profile. This will result in increased sediment transport into the wetlands and increased surface run-off. | Level 5 Risk | Moderate | Minimise transport of sediments and alien vegetation establishment. | Minimise the disturbance footprint during decommissioning. Rip compacted soils. Re-landscape soils to the natural landscape profile. Re-vegetate bare soils areas as soon as possible with indigenous species. Undertake regular alien vegetation surveys and remove all alien species. This will require long-term follow up. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | No natural vegetation will be removed as part of the decommissioning process. Only vegetation within the footprint of the shaft area might be impacted. This impact is dealt with under the appropriate sections above and below. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | Dewatering will cease during decommissioning. No impact | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Decommissioning of the station will involve the removal of all infrastructure associated with the station as well as the removal of contaminated soil (if any), and the landscaping of the footprint to the surrounding landscape profile. This will result in increased sediment transport into the wetlands and increased surface run-off. | Level 5 Risk | Moderate | Minimise transport of sediments and alien vegetation establishment. | Minimise the disturbance footprint during decommissioning. Rip compacted soils. Re-landscape soils to the natural landscape profile. Re-vegetate bare soils areas as soon as possible with indigenous species. Undertake regular alien vegetation surveys and remove all alien species. This will require long-term follow up. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Decommissioning of the road will involve the removal of the road and the landscaping of the footprint to the surrounding landscape profile. This will result in increased sediment transport into the wetlands and increased surface run-off. | Level 5 Risk | Moderate | Minimise transport of sediments and alien vegetation establishment. | Minimise the disturbance footprint during decommissioning. Rip compacted soils. Re-landscape soils to the natural landscape profile. Re-vegetate bare soils areas as soon as possible with indigenous species. Undertake regular alien vegetation surveys and remove all alien species. This will require long-term follow up. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | Decommissioning of the power line will involve the removal of all infrastructure associated with the power line and the landscaping of the footprint to the surrounding landscape profile. This will result in increased sediment transport into the wetlands and increased surface run-off. | Level 5 Risk | Moderate | Minimise transport of sediments and alien vegetation establishment. | Minimise the disturbance footprint during decommissioning. Rip compacted soils. Re-landscape soils to the natural landscape profile. Re-vegetate bare soils areas as soon as possible with indigenous species. Undertake regular alien vegetation surveys and remove all alien species. This will require long-term follow up. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | Decommissioning of the conveyor will involve the removal of all infrastructure associated with the conveyor and the landscaping of the footprint to the surrounding landscape profile. This will result in increased sediment transport into the wetlands and increased surface run-off. | Level 5 Risk | Moderate | Minimise transport of sediments and alien vegetation establishment. | Minimise the disturbance footprint during decommissioning. Rip compacted soils. Re-landscape soils to the natural landscape profile. Re-vegetate bare soils areas as soon as possible with indigenous species. Undertake regular alien vegetation surveys and remove all alien species. This will require long-term follow up. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | Decommissioning of the shaft area will involve the removal of all infrastructure associated with the shaft area as well as the removal of contaminated soil (if any), and the landscaping of the footprint to the surrounding | Level 5 Risk | Moderate | Minimise transport of sediments and alien vegetation establishment. | Minimise the disturbance footprint during decommissioning. Rip compacted soils. Re-landscape soils to the natural landscape profile. Re-vegetate bare soils areas as soon as possible with indigenous species. Undertake regular alien vegetation surveys and remove all alien species. This will | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |

| DECOMMISSIONING PHASE – Management measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|--|---|-----------------------|---|--|--|---|-----------------------|--------------------------|-------------------------------|-----------------------|----------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| | landscape profile. This will result in increased sediment transport into the wetlands and increased surface run-off. | | | | require long-term follow up. | | | | | | | | | |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | | |
| Taking water from a water resource - Section 21 (a). | Water abstraction will cease upon the end of the operational stage. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | During decommissioning impeding structures will be removed. This will result in increased sediment inputs to the wetlands increased erosion risk, disturbance to the vegetation and an increase in alien vegetation. | Level 5 Risk | Moderate | Minimise transport of sediments and alien vegetation establishment. | Minimise the disturbance footprint during decommissioning. Rip compacted soils. Re-landscape soils to the natural landscape profile. Re-vegetate bare soils areas as soon as possible with indigenous species. Undertake regular alien vegetation surveys and remove all alien species. This will require long-term follow up. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | Discharge of waste water will cease at the end of the operational phase. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | Disposal of waste will cease at the end of the operational phase. However, disposed waste could still contribute to water quality deterioration through leaching of pollutants. | Level 5 Risk | Moderate | Prevent deterioration of water quality | All waste material and contaminated soil must be removed from site during the de-commissioning phase. Minimise the disturbance footprint during decommissioning. Rip compacted soils. Re-landscape soils to the natural landscape profile. Re-vegetate bare soils areas as soon as possible with indigenous species. Undertake regular alien vegetation surveys and remove all alien species. This will require long-term follow up. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | This impact will occur mostly during the construction phase. However, removal of infrastructure located within water courses could result in increased sediment inputs to the wetlands increased erosion risk, disturbance to the vegetation and an increase in alien vegetation. | Level 5 Risk | Moderate | Minimise transport of sediments and alien vegetation establishment. | Minimise the disturbance footprint during decommissioning. Rip compacted soils. Re-landscape soils to the natural landscape profile. Re-vegetate bare soils areas as soon as possible with indigenous species. Undertake regular alien vegetation surveys and remove all alien species. This will require long-term follow up. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | Water abstraction and discharge will cease upon the end of the operational stage. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | Exemptions from GNR 704 | | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | Decommissioning of the mine will involve the removal of all infrastructure associated with the mine as well as the removal of contaminated soil (if any), and the landscaping of the footprint to the surrounding landscape profile. This will result in increased sediment transport into the wetlands and increased surface run-off. | Level 5 Risk | Moderate | Minimise transport of sediments and alien vegetation establishment. | Minimise the disturbance footprint during decommissioning. Rip compacted soils. Re-landscape soils to the natural landscape profile. Re-vegetate bare soils areas as soon as possible with indigenous species. Undertake regular alien vegetation surveys and remove all alien species. This will require long-term follow up. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | Undermining of wetlands could result in wetland loss and degradation where surface subsidence occurs. Fractures in the strata underlying the wetlands could result in loss of surface water to groundwater, leading to desiccation of wetlands and changes in species composition. | Level 5 Risk | High | Prevent surface subsidence under wetlands | Ideally no surface subsidence should be allowed to take place, especially not underneath the floodplain wetlands and larger valley bottom wetlands. The mine plan/mining method should be adjusted accordingly. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | Decommissioning of the mine will involve the removal of all infrastructure associated with the mine as well as the removal of contaminated soil (if any), and the landscaping of the footprint to the surrounding landscape profile. This will result in increased sediment transport into the wetlands and increased surface run-off. | Level 5 Risk | Moderate | Minimise transport of sediments and alien vegetation establishment. | Minimise the disturbance footprint during decommissioning. Rip compacted soils. Re-landscape soils to the natural landscape profile. Re-vegetate bare soils areas as soon as possible with indigenous species. Undertake regular alien vegetation surveys and remove all alien species. This will require long-term follow up. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | Decommissioning of the mine will involve the removal of all infrastructure associated with the mine as well as the removal of contaminated soil (if any), and the landscaping of the footprint to the surrounding landscape profile. This will result in increased sediment transport into the wetlands and increased surface run-off. | Level 5 Risk | Moderate | Minimise transport of sediments and alien vegetation establishment. | Minimise the disturbance footprint during decommissioning. Rip compacted soils. Re-landscape soils to the natural landscape profile. Re-vegetate bare soils areas as soon as possible with indigenous species. Undertake regular alien vegetation surveys and remove all alien species. This will require long-term follow up. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | | |
| NEMWA Section 19(3) and GN 718. | Decommissioning of the sewage plant will involve the removal of all infrastructure | Level 5 Risk | Moderate | Minimise transport of sediments and alien | Minimise the disturbance footprint during decommissioning. Rip compacted soils. Re-landscape soils to the natural | C2 | Level 6 Risk | Environmental Manager | During the closure | Part of rehabilitation | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |

| DECOMMISSIONING PHASE – Management measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|--|------------------------------|-----------------------|--|---|--|-----------------------------|--|--------------------------|-------------------------------|-----------------------|----------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| | associated with the sewage plant as well as the removal of contaminated soil (if any), and the landscaping of the footprint to the surrounding landscape profile. This will result in increased sediment transport into the wetlands and increased surface run-off. | | | vegetation establishment. | landscape profile. Re-vegetate bare soils areas as soon as possible with indigenous species. Undertake regular alien vegetation surveys and remove all alien species. This will require long-term follow up. | | | | phase | costs. | | | | |
| MINE SHAFT AREAS | | | | MINE SHAFT AREAS | | | | MINE SHAFT AREAS | | | | | | |
| Decommissioning the Shondoni shaft area | Decommissioning of the shaft area will involve the removal of all infrastructure associated with the shaft area as well as the removal of contaminated soil (if any), and the landscaping of the footprint to the surrounding landscape profile. This will result in increased sediment transport into the wetlands and increased surface run-off. | Level 5 Risk | Moderate | Minimise transport of sediments and alien vegetation establishment. | Minimise the disturbance footprint during decommissioning. Rip compacted soils. Re-landscape soils to the natural landscape profile. Re-vegetate bare soils areas as soon as possible with indigenous species. Undertake regular alien vegetation surveys and remove all alien species. This will require long-term follow up. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| All other remaining operational shafts (Main Shaft, West Shaft and Ithembaletu Shaft) and decommissioned shafts (North Shaft and North-West Shaft). | Decommissioning of the shaft area will involve the removal of all infrastructure associated with the shaft area as well as the removal of contaminated soil (if any), and the landscaping of the footprint to the surrounding landscape profile. This will result in increased sediment transport into the wetlands and increased surface run-off. | Level 5 Risk | Moderate | Minimise transport of sediments and alien vegetation establishment. | Minimise the disturbance footprint during decommissioning. Rip compacted soils. Re-landscape soils to the natural landscape profile. Re-vegetate bare soils areas as soon as possible with indigenous species. Undertake regular alien vegetation surveys and remove all alien species. This will require long-term follow up. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | |
| Underground mining. | Undermining of wetlands could result in wetland loss and degradation where surface subsidence occurs. Fractures in the strata underlying the wetlands could result in loss of surface water to groundwater, leading to desiccation of wetlands and changes in species composition. | Level 4 Risk | High | Prevent surface subsidence under wetlands | Ideally no surface subsidence should be allowed to take place, especially not underneath the floodplain wetlands and larger valley bottom wetlands. The mine plan/mining method should be adjusted accordingly. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| CONVEYOR BELT ROUTE | | | | CONVEYOR BELT ROUTE | | | | CONVEYOR BELT ROUTE | | | | | | |
| Decommissioning the conveyor | Decommissioning of the conveyor will involve the removal of all infrastructure associated with the conveyor as well as the removal of contaminated soil (if any), and the landscaping of the footprint to the surrounding landscape profile. This will result in increased sediment transport into the wetlands and increased surface run-off. | Level 5 Risk | Moderate | Minimise transport of sediments and alien vegetation establishment. | Minimise the disturbance footprint during decommissioning. Rip compacted soils. Re-landscape soils to the natural landscape profile. Re-vegetate bare soils areas as soon as possible with indigenous species. Undertake regular alien vegetation surveys and remove all alien species. This will require long-term follow up. | C2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| | | | | | | | | EMP COMPONENTS | | | | | | |
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Aquatic Ecosystems | | | | Aquatic Ecosystems | | | | Aquatic Ecosystems | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Decommissioning of the stockpile will involve the removal of all infrastructure associated with the stockpile as well as the removal of contaminated soil (if any), and the landscaping of the footprint to the surrounding landscape profile. This will result in increased sediment transport into the wetlands and increased surface run-off. Surface water may be contaminated with coal dust. | Level 4 Risk | Moderate | Minimise transport of sediments and alien vegetation establishment. | Minimise the disturbance footprint during decommissioning. Ensure coal-contaminated soil is completely removed and appropriately disposed of or bio-remediated. Sediments should be trapped before entering watercourses. Rip compacted soils. Re-landscape soils to the natural landscape profile. Re-vegetate bare soils areas as soon as possible with indigenous species. Undertake regular alien vegetation surveys and remove all alien species. This will require long-term follow up. | 2 | Level 5 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Mobilisation of sediments, increased suspended solids and turbidity in receiving watercourses, invasion by alien vegetation | Level 4 Risk | Low | Minimise sediment mobilisation | Deconstruction must take place in dry season. Activities to be zoned so that only essential activities occur within 1:100 year flood lines. Any coal-contaminated soil to be completely removed from site. Rehabilitation and re-vegetation according to a rehabilitation plan compiled by qualified specialist. | 4 | Level 4 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | Contamination of surface water or groundwater as a result of sediment mobilisation, spills or seepage | Level 5 Risk | Low | Minimise sediment transport, Rehabilitate site appropriately | Minimise the disturbance footprint during decommissioning. Ensure contaminated sediment is completely removed from site and appropriately disposed of. Rip compacted soils. Re-landscape soils to the natural landscape profile. Re-vegetate bare soil areas as soon as possible with indigenous species. Ensure storm water does not cause erosion. Undertake regular alien vegetation surveys and remove all alien species. This will require long-term follow up. | 3 | Level 5 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | Mobilisation of sediments, increased suspended solids and turbidity in receiving watercourse, invasion by alien vegetation | Level 4 Risk | Low | Minimise sediment mobilisation | Deconstruction must take place in dry season. Activities to be zoned so that only essential activities occur within 1:100 year flood lines. Sediments should be trapped before entering watercourses. Ensure contaminated soil is completely removed and appropriately disposed of or bio-remediated; Rehabilitate and re-vegetate the area according to a rehabilitation plan | 4 | Level 4 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |

| DECOMMISSIONING PHASE – Management measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|--|--|-----------------------|---|---|--|-----------------------------|--|--------------------------|-------------------------------|-----------------------|----------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| | | | | | compiled by qualified specialist; manage alien vegetation. | | | | | | | | | |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Mobilisation of sediments, increased sediment loads in drainage lines | Level 6 Risk | Low | Minimise sediment mobilisation | Ensure sediments are trapped and prevented from entering watercourses; Ensure contaminated soil is completely removed and appropriately disposed of or bio-remediated; Rehabilitate and re-vegetate the area according to a rehabilitation plan compiled by qualified specialist; manage alien vegetation. | 3 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Mobilisation of sediments, increased sediment loads in drainage lines | Level 6 Risk | Low | Minimise sediment mobilisation | Ensure sediments are trapped and prevented from entering watercourses; Ensure contaminated soil is completely removed and appropriately disposed of or bio-remediated; Rehabilitate and re-vegetate the area according to a rehabilitation plan compiled by qualified specialist; manage alien vegetation. | 3 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | No dewatering during decommissioning | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Mobilisation of sediments, increased sediment loads and storm water runoff in drainage lines | Level 6 Risk | Low | Minimise sediment mobilisation | Ensure sediments are trapped and prevented from entering watercourses | 3 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | Mobilisation of sediments, increased suspended solids and turbidity in receiving watercourses, invasion by alien vegetation | Level 4 Risk | Low | Minimise sediment mobilisation | Deconstruction must take place in dry season. Activities to be zoned so that only essential activities occur within 1:100 year flood lines. Ensure sediments are trapped before entering watercourses. Ensure contaminated soil is completely removed and appropriately disposed of or bio-remediated; Rehabilitate and re-vegetate the area according to a rehabilitation plan compiled by qualified specialist; including the management of alien vegetation. | 4 | Level 4 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | Mobilisation of sediments, increased suspended solids and turbidity in receiving watercourses, invasion by alien vegetation | Level 4 Risk | Low | Minimise sediment mobilisation | Deconstruction must take place in dry season. Activities to be zoned so that only essential activities occur within 1:100 year flood lines. Ensure sediments are trapped before entering watercourses. Ensure contaminated soil is completely removed and appropriately disposed of or bio-remediated; Rehabilitate and re-vegetate the area according to a rehabilitation plan compiled by qualified specialist; including the management of alien vegetation. | 4 | Level 4 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | Mobilisation of sediments, increased suspended solids and turbidity in receiving watercourses, erosion and invasion by alien vegetation | Level 4 Risk | Low | Minimise sediment mobilisation | Deconstruction must take place in dry season. Activities to be zoned so that only essential activities occur within 1:100 year flood lines. Ensure sediments are trapped before entering watercourses. Ensure contaminated soil is completely removed and appropriately disposed of or bio-remediated; Rehabilitate and re-vegetate the area according to a rehabilitation plan compiled by qualified specialist; including the management of alien vegetation. | 3 | Level 5 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | |
| Taking water from a water resource - Section 21 (a). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | During decommissioning impeding structures will be removed. This will result in increased sediment inputs to the wetlands increased erosion risk, disturbance to the vegetation and an increase in alien vegetation. | Level 4 Risk | Moderate | Minimise transport of sediments and alien vegetation establishment. | Deconstruction must take place in dry season. Activities to be zoned so that only essential activities occur within 1:100 year flood lines. Impeding or diverting structures to be utilised for the shortest possible duration so as not to interrupt fish movements. Sediments should be trapped before entering a watercourse and erosion prevented with protective measures or promptly remedied. Ensure contaminated soil is completely removed and appropriately disposed of or bio-remediated; Rehabilitate and re-vegetate the area according to a rehabilitation plan compiled by qualified specialist; including the management of alien vegetation. | 6 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | No dewatering during decommissioning | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | Disposal of waste will cease at the end of the operational phase. However, disposed waste could still contribute to water quality deterioration through leaching of pollutants. | Level 5 Risk | Moderate | Prevent deterioration of water quality | All waste material and contaminated soil must be removed from site during the de-commissioning phase. Minimise the disturbance footprint during decommissioning. Rip compacted soils. Re-landscape soils to the natural landscape profile. Re-vegetate bare soils areas as soon as possible with indigenous species. Undertake regular alien vegetation surveys and remove all alien species. This will require long-term follow up. | 6 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | Mobilisation of sediments, increased suspended solids and turbidity and erosion at stream crossings | Level 4 Risk | Low | Minimise sediment mobilisation | Deconstruction must take place in dry season. Activities to be zoned so that only essential activities occur within 1:100 year flood lines. Ensure sediments are trapped before entering watercourses. Ensure contaminated soil is completely removed | 3 | Level 5 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |

| DECOMMISSIONING PHASE – Management measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|--|---|-----------------------|---|--|--|---|-----------------------|--------------------------|-------------------------------|-----------------------|----------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| | | | | | and appropriately disposed of or bio-remediated; Rehabilitate and re-vegetate the area according to a rehabilitation plan compiled by qualified specialist; including the management of alien vegetation. | | | | | | | | | |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | No dewatering during decommissioning | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | Exemptions from GNR 704 | | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | Mobilisation of sediments, increased suspended solids and turbidity in receiving watercourses, erosion and invasion by alien vegetation | Level 4 Risk | Low | Minimise sediment mobilisation | Deconstruction must take place in dry season. Activities to be zoned so that only essential activities occur within 1:100 year flood lines. Ensure sediments are trapped before entering watercourses. Ensure contaminated soil is completely removed and appropriately disposed of or bio-remediated; Rehabilitate and re-vegetate the area according to a rehabilitation plan compiled by qualified specialist; including the management of alien vegetation. | 3 | Level 5 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | Undermining of wetlands could result in wetland loss and degradation where surface subsidence occurs. Fractures in the strata underlying the wetlands could result in loss of surface water to groundwater, leading to desiccation of wetlands and changes in species composition. | Level 5 Risk | High | Prevent surface subsidence under wetlands | Ideally no surface subsidence should be allowed to take place, especially not underneath the floodplain wetlands and larger valley bottom wetlands. The mine plan/mining method should be adjusted accordingly. | 4 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | Mobilisation of sediments, increased suspended solids and turbidity in receiving watercourses, erosion and invasion by alien vegetation | Level 4 Risk | Low | Minimise sediment mobilisation | Deconstruction must take place in dry season. Activities to be zoned so that only essential activities occur within 1:100 year flood lines. Ensure sediments are trapped before entering watercourses. Ensure contaminated soil is completely removed and appropriately disposed of or bio-remediated; Rehabilitate and re-vegetate the area according to a rehabilitation plan compiled by qualified specialist; including the management of alien vegetation. | 3 | Level 5 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | Mobilisation of sediments, increased suspended solids and turbidity in receiving watercourses, erosion and invasion by alien vegetation | Level 4 Risk | Low | Minimise sediment mobilisation | Deconstruction must take place in dry season. Activities to be zoned so that only essential activities occur within 1:100 year flood lines. Ensure sediments are trapped before entering watercourses. Ensure contaminated soil is completely removed and appropriately disposed of or bio-remediated; Rehabilitate and re-vegetate the area according to a rehabilitation plan compiled by qualified specialist; including the management of alien vegetation. | 3 | Level 5 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | | |
| NEMWA Section 19(3) and GN 718. | Decommissioning of the sewage plant will involve the removal of all infrastructure associated with the sewage plant as well as the removal of contaminated soil (if any), and the landscaping of the footprint to the surrounding landscape profile. This will result in increased sediment transport into the wetlands and increased surface run-off. | Level 4 Risk | Moderate | Minimise transport of sediments and alien vegetation establishment. | Minimise the disturbance footprint during decommissioning. Rip compacted soils. Re-landscape soils to the natural landscape profile. Re-vegetate bare soils areas as soon as possible with indigenous species. Undertake regular alien vegetation surveys and remove all alien species. This will require long-term follow up. | 6 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | MINE SHAFT AREAS | | | | | | | |
| Shaft complex: water management system (i.e. dams) | Acidification of surface and groundwater as a result of seepage from stockpiles or overspill from pollution dams | Level 5 Risk | Medium | Prevent seepage or spills | Ensure storm water from stockpiles is caught by dirty water retention dams. Ensure overburden stockpile is capped, appropriately sloped and re-vegetated so as to prevent pooling and erosion. Erosion points should be immediately rehabilitated. Dam retaining walls should be regularly checked for safety and capacity (which should cater for unforeseen high volumes). Prevent leaking pipes by adequate maintenance and mend leaks promptly. | 3 | Level 5 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Decommissioning of the shaft complex at Shondoni | Mobilisation of sediments and increased surface runoff | Level 5 Risk | Low | Prevent erosion and increased sediment loads in watercourses | Cut-off trenches should minimise flow through the site and should be designed to prevent erosion at the outlets. All dirty water should be collected in retention dams that should be designed to accommodate major storm events during all stages of the development. All developments should be located outside the 1:100 year flood line. Water quality monitoring should detect peaks in suspended solids and turbidity and these should be recorded as incidents and corrective action taken as soon as possible. Decommissioning to take place during dry season. Ensure contaminated soil is completely removed and appropriately disposed of or bio-remediated; Rehabilitate and | 2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |

| DECOMMISSIONING PHASE – Management measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|--|------------------------------|-----------------------|--|---|--|-----------------------------|---|--------------------------|-------------------------------|-----------------------|----------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| | | | | | re-vegetate the area according to a rehabilitation plan compiled by qualified specialist; including the management of alien vegetation. | | | | | | | | | |
| Decommissioning of the shaft complex at Shondoni | Erosion caused by storm water | Level 6 Risk | Low | Prevent erosion | Cut-off trenches should minimise flow through the site and should be designed to prevent erosion at the outlets. Erosion nick-points should be rehabilitated and re-vegetated as soon as they are evident. Decommissioning to take place during dry season. | 2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Decommissioning of the shaft complex at Shondoni | Solid Waste | Level 4 Risk | Low | Appropriate disposal of solid waste | All solid waste to be removed from site. Waste should be recycled as much and as soon as possible. Hazardous waste (tyres, PVC, hydrocarbons) to be responsibly stored and removed. | 2 | Level 5 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Shaft Complex | Invasion by alien vegetation | Level 4 Risk | Medium | Manage invasive alien species | Implement an alien eradication and management plan and programme applicable throughout all phases of the development | 2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Coal spills/coal dust | Pollution of surface water | Level 4 Risk | Low | Prevent contamination from coal dust | Coal-contaminated soil/dust remaining on site must be responsibly removed or bio-remediated | 2 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | |
| Underground mining and slimes dam | Acid Mine Drainage: increasing acidification and salinisation of surface and ground water | Level 4 Risk | Low-High | Prevent contamination of surface water with mine water | Avoid undermining the slimes dam. Maximise the use of Bord and Pillar mining. Pillar extraction should not coincide with wetlands or watercourses, especially those rated as sensitive or near-pristine (such as the Bankspruit and its tributaries); Ensure water treatment and pumping facilities are adequately maintained and have adequate capacity | 3 | Level 4 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Subsidence | Undermining of wetlands could result in wetland loss and degradation where surface subsidence occurs. Fractures in the strata underlying the wetlands could result in loss of surface water to groundwater, leading to desiccation of wetlands and changes in species composition. | Level 5 Risk | High | Prevent loss of wetlands due to surface subsidence | Ideally no surface subsidence should be allowed to take place, especially not underneath the floodplain wetlands and larger valley bottom wetlands. The mine plan/mining method should be adjusted accordingly. | 3 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Contamination by mine water (spills/subsidence/seepage) | Loss of sensitive taxa and biodiversity | Level 4 Risk | Medium | Prevent loss of biodiversity | Avoid development/mining/ crossings adjacent/under/across highly sensitive river systems, such as within the Bankspruit system. The Bankspruit and its tributaries should be conserved as far as possible. No pillar extraction should be undertaken within this catchment or at least not under Bankspruit tributaries. Apply mitigation for spills, seepage and leaks. Conduct regular bio-monitoring and water quality monitoring (as recommended) in watercourses using baseline data as a point of reference. Recommendations by specialists in the bio-monitoring reports should be considered incidents that trigger immediate corrective action | 3 | Level 4 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| CONVEYOR BELT ROUTE | | | | | | | | CONVEYOR BELT ROUTE | | | | | | |
| Deconstruction of pedicels and conveyor tunnels/road crossings | Mobilisation of sediments, increased suspended solids and turbidity in streams and wetlands | Level 4 Risk | Low | Minimise sediment mobilisation | Deconstruction must take place in dry season and must be followed by rehabilitation. Sediments should be intercepted before they enter watercourses. Ensure contaminated soil is completely removed and appropriately disposed of or bio-remediated; Rehabilitate and re-vegetate the area according to a rehabilitation plan compiled by qualified specialist; including the management of alien vegetation and erosion. | 3 | Level 4 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| | | | | | | | | EMP COMPONENTS | | | | | | |
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Air Quality | | | | | | | | Air Quality | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |

| DECOMMISSIONING PHASE – Management measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|-----------------------------------|--|-----------------------|----------------------------------|-----------------------------|--|--|--------------------|---------------|----------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| 000 cubic metres - Activity 7. | | | | | | | | | | | | | | |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (j). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | | |
| Taking water from a water resource - Section 21 (a). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | Exemptions from GNR 704 | | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |

| DECOMMISSIONING PHASE – Management measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | | |
|---|--|---|-----------------------|--|---|--|-----------------------------|---|--------------------------|-------------------------------|-----------------------|----------------------|------------------|------------------------|---|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment | |
| within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | | | | | | | | | | | | | | | |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | | |
| NEMWA Section 19(3) and GN 718. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | | MINE SHAFT AREAS | | | | | | | |
| Decommissioning of Shondoni shaft area | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| All other remaining operational shafts (Main Shaft, West Shaft and Ithembaethu Shaft) and decommissioned shafts (North Shaft and North-West Shaft). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | | |
| | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | | CONVEYOR BELT ROUTE | | | | | | | |
| Decommissioning of the conveyor belt. | Deconstruction vehicles will create localised secondary fugitive dust and gaseous particles due to construction activities at the conveyor belt. | Level 6 Risk | LOW | To reduce localized dust and gaseous materials affecting working conditions during the deconstruction phase. | Reduce dust by the appropriate level of dust suppression. Make use of deconstruction vehicles that adhere to reduced gaseous emissions targets. | C3 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual | |
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | | |
| Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment | | | | | | | | | |
| Noise | | Noise | | | | | | Noise | | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of a Coal Conveyor from | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |

| DECOMMISSIONING PHASE – Management measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|-----------------------------------|---|-----------------------|----------------------------------|-----------------------------|--|---|------------------------|--------------------------|-------------------------------|-----------------------|-----------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | | | | | | | | | | | | | | |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | | |
| Taking water from a water resource - Section 21 (a). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | Exemptions from GNR 704 | | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | | |
| NEMWA Section 19(3) and GN 718. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | MINE SHAFT AREAS | | | | | | | |
| Dismantling and vehicles on access road | Dismantling construction noise | Level 6 Risk | ~ | ~ | ~ | ~ | ~ | Environment al Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitatio n costs | Annual | Annual |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | | |
| N/A | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | CONVEYOR BELT ROUTE | | | | | | | |
| Dismantling and vehicles on service road | Dismantling construction noise | Level 6 Risk | ~ | ~ | ~ | ~ | ~ | Environment | During the | Part of | Rehabilitation | Rehabilitatio | Annual | Annual |

| DECOMMISSIONING PHASE – Management measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|-----------------------------------|---|-----------------------|----------------------------------|-----------------------------|--|---|--------------------|---------------|-----------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| | | Risk | | | | | | al Manager | closure phase | rehabilitation costs. | costs. | n costs | | |
| Activity Description | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
| Activity Description | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Visuals | | Visuals | | | | | Visuals | | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Decommissioning of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Decommissioning of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | | |
| Decommissioning of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Decommissioning of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | | |
| Taking water from a water resource - Section 21 (a). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removing, discharging or disposing of water found underground if it is necessary | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |

| DECOMMISSIONING PHASE – Management measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|---|---|-----------------------|---|---|--|---|-----------------------|-------------------------------|--|-----------------------|----------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| for the efficient continuation of an activity or for the safety of people - Section 21 (j). | | | | | | | | | | | | | | |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | Exemptions from GNR 704 | | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the Decommissioning of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | | |
| Not Applicable | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | MINE SHAFT AREAS | | | | | | | |
| Demolition Activities and removal of infrastructure | Highly visible from R547; has impact on short to medium range views on road users | Level 6 Risk | Med. | Reduce short range visibility of decommissioning activities | Planting of trees during the construction phase will serve to screen activities | C1 | Level 6 Risk | Environmental Manager | During the Construction phase | Part of mining activity preparation - commissioning costs. | Capex | Project funds | Annual | Annual |
| | Visibility impact for long range views from east | Level 6 Risk | High | None Available | None Available | C1 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| | Alterations to Landscape and Visual Character (Morphology & Topography) | Level 6 Risk | High | Reduce contrast to surrounding environment | None Available | C1 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| Re-establishing of Vegetation | Highly visible from R547; has impact on short to medium range views on road users | Level 6 Risk | - | Positive Impact | None Required | C1 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| | Alterations to Landscape and Visual Character (Vegetation & Land cover) | Level 6 Risk | - | Positive Impact | None Required | C1 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| | Alterations to Landscape and Visual Character (Hydrology) | Level 6 Risk | - | Positive Impact | None Required | C1 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | | |
| None. | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | CONVEYOR BELT ROUTE | | | | | | | |
| Removal of Conveyor Belt | Highly visible from R547 and Brendan Village; has impact on short to medium range views on road users and residents | Level 6 Risk | Med. | Reduce short range visibility of decommissioning activities | Planting of trees during the construction phase will serve to screen activities | C1 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| | Visibility impact for long range views | Level 6 Risk | High | None Available | None Available | C1 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |
| | Alterations to Landscape and Visual Character (Morphology & Topography) | Level 6 Risk | High | None Available | None Available | C1 | Level 6 Risk | Environmental Manager | During the closure | Part of rehabilitation | Rehabilitation costs. | Rehabilitation costs | Annual | Annual |

| DECOMMISSIONING PHASE – Management measures | | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | | |
|---|--|---|-----------------------|----------------------------------|-----------------------------|--|-----------------------------|-----------------------|---|-------------------------------|-----------------------|----------------------|------------------|------------------------|--|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment | |
| | Visual Exposure impact for road users of R547 as well as Brendan Village residents | Level 6 Risk | Med. | None Available | None Available | C1 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual | |
| Re-establishing of Vegetation | Visible from R547; has impact on short to medium range views on road users and Brendan Village residents | Level 6 Risk | - | Positive Impact | None Required | C1 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual | |
| | Alterations to Landscape and Visual Character (Vegetation & Landcover) | Level 6 Risk | - | Positive Impact | None Required | C1 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual | |
| | Alterations to Landscape and Visual Character (Hydrology) | Level 6 Risk | - | Positive Impact | None Required | C1 | Level 6 Risk | Environmental Manager | During the closure phase | Part of rehabilitation costs. | Rehabilitation costs. | Rehabilitation costs | Annual | Annual | |
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | | |
| Heritage | | Heritage | | | | | | | Heritage | | | | | | |
| Only Construction phase applicable | | Only Construction phase applicable | | | | | | | Only Construction phase applicable | | | | | | |
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigatory Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment | |
| Socio-Economic | | Socio-Economic | | | | | | | Socio-Economic | | | | | | |
| Please refer to Sasol Shondoni Social and Labour Plan | | Please refer to Sasol Shondoni Social and Labour Plan | | | | | | | Please refer to Sasol Shondoni Social and Labour Plan | | | | | | |

7.3.5 Post Closure Phase Management Measure Tables

| POST CLOSURE PHASE – Management Measures | | Risk Level Before Mitigation | Mitigator y Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|-----------------------------------|--|------------------------|----------------------------------|-----------------------------|--|--|--------------------|---------------|----------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Topography | | Topography | | | | | Topography | | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | | |
| Taking water from a water resource - Section 21 (a). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | Exemptions from GNR 704 | | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |

| POST CLOSURE PHASE – Management Measures | | Risk Level Before Mitigation | Mitigator y Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|--|--|--|------------------------|---|--|--|--|-----------------------|-------------------------------|------------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | | | | | | | | | | | | | | |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | | |
| NEMWA Section 19(3) and GN 718. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | MINE SHAFT AREAS | | | | | | | |
| Rehabilitation & closure | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| All other remaining operational shafts (Main Shaft, West Shaft and Ithembaletu Shaft) and decommissioned shafts (North Shaft and North-West Shaft). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | | |
| Areas of the mine where surface subsidence can still take place after mining activities have stopped. | Residual pillar collapse that can lead to further surface subsidence. | Level 6 | HIGH | Monitor all increased extraction areas for surface subsidence | If surface subsidence take place, rehabilitate the surface area to pre-mining topographical conditions, as per the Sasol Mining Standard Operating Procedure for subsidence. | | Level 6 | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | CONVEYOR BELT ROUTE | | | | | | | |
| | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Soils and Land Capability | | Soils and Land Capability | | | | | Soils and Land Capability | | | | | | | |
| No Management measures specified for the Post-Closure Phase | | No Management measures specified for the Post-Closure Phase | | | | | No Management measures specified for the Post-Closure Phase | | | | | | | |
| Ground Water | | Ground Water | | | | | Ground Water | | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | The final closure of a 15 000t ROM coal stockpile area at Shondoni Shaft. Residual seepage from the stockpile footprint area can lead to further ground water pollution. | Level 6 Risk | LOW | To prevent the residual seepage of contaminated soils from the ROM stockpile entering the underlying aquifer units. | The ROM stockpile footprint must be rehabilitated to pre-mining surface- and topographical conditions. | C1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | The Conveyor Pedestal will not intersect ground water, so no impact will take place during final closure. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |

| POST CLOSURE PHASE – Management Measures | | Risk Level Before Mitigation | Mitigator Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|--|--|--|----------------------|---|--|--|--|-----------------------|-------------------------------|------------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | The closure and final rehabilitation of the Storm Water Pollution Control Dam (SWPCD) footprint. | Level 6 Risk | LOW | To prevent the residual seepage of contaminated soils from the Storm Water Pollution Control Dam (SWPCD) footprint entering the underlying aquifer units. | Prevent residual seepages and spillages of polluted water from the SWPCD footprint by rehabilitating the surface area to pre-mining surface- and topographical conditions. | C2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | The Conveyor Pedestal will not intersect ground water, so no impact will take place during final closure of the infrastructure. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | The removal of diesel fuel storage tanks. | Level 6 Risk | LOW | All risks are removed at this stage | No spillages can happen at this stage. | C2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | The removal of the Overhead Power line will not intersect ground water, so no impact will take place. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | The final removal of the coal conveyor belt will not intersect ground water, so no impact will take place. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | This activity only refers to surface disturbance. Since no ground water is intersected, no impact will take place. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | | |
| Taking water from a water resource - Section 21 (a). | After final flooding of mining sections, water will be stored in underground mining sections. IF surface treatment of ground water is required, the appropriate amendment to the WULA will be made to register this water use. | Level 3 Risk | LOW | To treat polluted water from underground facilities, to prevent the decant of polluted water. | Treat any polluted underground water on surface in the event that it should decant. | C4 | Level 4 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | Not Applicable, since no water will be captured from any ROM stock piles removed during closure phase). | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | Not Applicable, since no water will be moved around for closure purposes. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | Exemptions from GNR 704 | | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |

| POST CLOSURE PHASE – Management Measures | | Risk Level Before Mitigation | Mitigator Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|--|--|---|----------------------|--|---|--|---|-----------------------|-------------------------------|------------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Regulation 4(a). No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | | |
| NEMWA Section 19(3) and GN 718. | Not Applicable. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | MINE SHAFT AREAS | | | | | | | |
| Final closure of the shaft complex at Shondoni. | Localized depletion of ground water (if it occurred during the operational phase) will be reversed, and ground water levels will finally return to pre-mining ground water levels. | Level 6 Risk | LOW | The return of ground water levels to pre-mining levels is a positive impact. | None | C1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| All other remaining operational shafts (Main Shaft, West Shaft and Ithembaletu Shaft) and decommissioned shafts (North Shaft and North-West Shaft). | Localized depletion of ground water (if it occurred during the operational phase) will be reversed, and ground water levels will finally return to pre-mining ground water levels. | Level 6 Risk | LOW | The return of ground water levels to pre-mining levels is a positive impact. | None | C1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| UNDERGROUND MINING ACTIVITIES OF THE NOS 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NOS 2 AND 4 COAL SEAM | | | | | UNDERGROUND MINING ACTIVITIES OF THE NOS 2 AND 4 COAL SEAM | | | | | | | |
| The continuous influx of groundwater recharge into mine workings until all mining units are flooded. | Ground water recharge from surface will enter areas of bord and pillar and high extraction mining until all mining units are flooded. | Level 3 Risk | LOW | Manage the influx of normal ground water recharge as part of the post closure phase water balance. | Manage the post-closure phase water balance responsibly to reduce water make and optimise underground storage space available, until all mining units are flooded. | C4 | Level 4 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| The decant of underground mine water to surface, after total flooding of mining units. | After final flooding of mining sections, ground water can seep to surface due to conduit flow from high extraction subsidence areas. | Level 5 Risk | HIGH | Prevent uncontrollable decant of underground mine water on surface. | If surface decant takes place, manipulate ground water elevations in the total mining complex by pumping and treating polluted water on surface. | C3 | Level 5 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Inter-mine and inter-section flow of ground water during the post closure phase. | Ground water resources stored in Shondoni underground mining units can migrate from one mine/section to an adjacent mine/section, due to a difference in hydraulic pressure. Flow can also be induced where flooding compartments decant into surrounding compartments due to a roll in the coal seam floor. | Level 2 Risk | HIGH | Manage the overall water balance of the total Sasol Coal mining complex to prevent uncontrollable inter-mine flow to surrounding mines. | Measure water levels in the overall Sasol Coal reservoirs to ensure that no unit is over-utilized, and allowed to migrate or decant. Move between storage compartments (reservoirs) before inter-mine or inter-section flow takes place or pump excess water to surface where water can be desalinated. | C4 | Level 4 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Continuous depletion of external users' groundwater resources and fountains due to pillar extraction mining activities of the No. 4 coal seam. | Pillar extraction mining activities can lead to sub-surface subsidence, that in turn will lead to a reduction/complete depletion of external user's borehole yields, for indefinite time frames. | Level 5 Risk | HIGH | Monitor all external user's boreholes for 1) yield and 2) quality deterioration, based on a structured monitoring protocol. | Supply external users with supplementary water in the cases where a mining-related impact can be proven. | C3 | Level 5 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Depletion of stream base flow due to sub-surface subsidence of the No.4 coal seam, post-closure. | Pillar extraction mining activities can lead to sub-surface subsidence, that in turn will lead to a reduction/complete depletion of ground water base flow to rivers and non-perennial streams., for indefinite periods of time. | Level 6 Risk | HIGH | Surface rehabilitation of subsidence areas must reduce the reduction of stream base flow. | In the event that surface water streams or non-perennial streams is intersected by surface subsidence, rehabilitate the stream as soon as possible, to prevent further ingress of surface water to underground mining units. | C3 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Deterioration in groundwater quality in all underground sections, and migration into the receiving environment, after mining activities have stopped. | Ground water recharge to underground mining units that remains in reservoirs will come in contact with coal pillars, mine floors and roofs. A gradual deterioration in ground water quality will take place over time, eventually leading to total acidification of underground mine water. | Level 3 Risk | HIGH | The deterioration of ground water in underground units is a given. The migration of polluted ground water will be avoided by managing the water in underground storage compartments. | Monitor underground ground water qualities on a quarterly basis. Excess water in the total Sasol Mine area must be pumped to surface and desalinated. | C4 | Level 4 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Groundwater pollution originating from the ROM coal stock pile footprint at the Shondoni Shaft Complex after closure. | Seepage from the stockpile area footprint can lead to ground water pollution, if not rehabilitated correctly. | Level 6 Risk | LOW | Prevent residual seepage of contaminated water from the ROM stockpile footprint by rehabilitating the footprint | Rehabilitate footprints to SABS 0268 Standards to remove any residual contaminants. | C2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |

| POST CLOSURE PHASE – Management Measures | | Risk Level Before Mitigation | Mitigator y Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | | | |
|---|---|------------------------------|------------------------|--|---|--|-----------------------------|--|-------------------------------|------------------------|-------------------|---------------------|------------------|------------------------|---|---|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment | | |
| | | | | correctly. | | | | | | | | | | | | |
| Groundwater pollution originating from the Storm Water Pollution Control Dam (SWPCD) footprint after closure. | Seepage from the SWPCD footprint can lead to ground water pollution, if not rehabilitated correctly. | Level 6 Risk | LOW | Prevent residual seepage of contaminated water from the SWPCD footprint by rehabilitating the footprint correctly. | Rehabilitate footprints to SABS 0268 Standards to remove any residual contaminants. | C2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual | | |
| CONVEYOR BELT ROUTE | | | | CONVEYOR BELT ROUTE | | | | CONVEYOR BELT ROUTE | | | | | | | | |
| Final removal of the Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area). | The removal of the coal conveyor belt will not intersect/impact ground water resources, so no impact will take place. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| | | | | | | | | EMP COMPONENTS | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| Surface Water | | | | Surface Water | | | | Surface Water | | | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | N/A | Level 5 Risk | LOW | | - None required | C1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual | | |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | Impact on water quality: The PCD will remain in place post closure . | Level 6 Risk | Low | | - None required | C1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual | | |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | | | |
| Taking water from a water resource - Section 21 (a). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Disposing of waste in a manner which may detrimentally impact on a water resource - | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |

| POST CLOSURE PHASE – Management Measures | | Risk Level Before Mitigation | Mitigator Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|--|---|----------------------|--|--|--|---|-----------------------|-------------------------------|------------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Section 21 (g). | | | | | | | | | | | | | | |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | Exemptions from GNR 704 | | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | Impact on catchment yield: Decommissioning will not significantly change the operational loss in yield. | Level 5 Risk | High | Minimise the recharge of surface water to the underground mining | - No high extraction mining will take place under watercourses. - Conservative pillar safety factors will be used in bord & pillar areas, particularly where watercourses are undermined. Surface above stooped areas will be inspected to ensure it remains free draining. - Where necessary, civil works such as cutting of drains will be undertaken to restore free drainage at areas of subsidence. | C2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | | |
| NEMWA Section 19(3) and GN 718. | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | MINE SHAFT AREAS | | | | | | | |
| Water management infrastructure at all shaft areas. | Impact on water quality: The PCD will remain in place post closure . | Level 6 Risk | Low | | - None required | C1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| UNDERGROUND MINING ACTIVITIES OF THE NOS 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NOS 2 AND 4 COAL SEAM | | | | | UNDERGROUND MINING ACTIVITIES OF THE NOS 2 AND 4 COAL SEAM | | | | | | | |
| Underground mining | Impact on catchment yield: Decommissioning will not significantly change the operational loss in yield. | Level 5 Risk | High | Minimise the recharge of surface water to the underground mining | - Surface above stooped areas will be inspected to ensure it remains free draining. - Where necessary, civil works such as cutting of drains will be undertaken to restore free drainage at areas of subsidence. | C2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Potential mine water discharge | Impact on water quality: Time to decant expected to be 80 to 100 years after mining ceases. Expected water qualities, at recharge rate of 8.7 Ml/day: - pH 7.5 (bord & pillar areas); 2.5 (total extraction areas) - EC 1100 mS/m (bord & pillar areas); 800 mS/m (total extraction areas) - SO4 <50 mg/l (bord & pillar areas); 3200 mg/l (total extraction areas) | Level 1 Risk | Low | Prevention of unplanned decant of water affected by mining | - Monitoring of water levels and water quality in the mine - Calibration of water balance model to enhance prediction on timing of intervention measures - Prior to construction of any treatment plant, necessary EIA studies and licenses applications will be made. | C3 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | CONVEYOR BELT ROUTE | | | | | | | |
| N/A | N/A | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| POST CLOSURE PHASE – Management Measures | | Risk Level Before Mitigation | Mitigator Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Plant Life | | Plant Life | | | | | Plant Life | | | | | | | |

| POST CLOSURE PHASE – Management Measures | | Risk Level Before Mitigation | Mitigator Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|--|--|----------------------|---|--|--|--|-----------------------|-------------------------------|------------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate sensitive areas and avoid these. | C1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate sensitive areas and avoid these. | C1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate sensitive areas and avoid these. | C1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate sensitive areas and avoid these. | C1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate sensitive areas and avoid these. | C1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate sensitive areas and avoid these. | C1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate sensitive areas and avoid these. | C1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate sensitive areas and avoid these. | C1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate sensitive areas and avoid these. | C1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | Alien plant invasions, habitat deterioration, change in physical abiotic conditions. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Demarcate sensitive areas and avoid these, control dust. | C1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | Alien plant invasions, habitat deterioration, change in physical abiotic conditions. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Demarcate sensitive areas and avoid these, control dust. | C1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | Alien plant invasions, habitat deterioration, change in physical abiotic conditions. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Demarcate sensitive areas and avoid these, control dust. | C1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | | |
| Taking water from a water resource - Section 21 (a). | Change in physical abiotic conditions. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Demarcate sensitive areas and avoid these, prevent water contamination | C3 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | Alien plant invasions, habitat deterioration, change in physical abiotic conditions. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Demarcate sensitive areas and avoid these, prevent water contamination | C3 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | Change in physical abiotic conditions. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Demarcate sensitive areas and avoid these, prevent water contamination | C3 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | Change in physical abiotic conditions. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Demarcate sensitive areas and avoid these, prevent water contamination | C3 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | Alien plant invasions, habitat deterioration, change in physical abiotic conditions. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Demarcate sensitive areas and avoid these, prevent water contamination | C3 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | Change in physical abiotic conditions. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Demarcate sensitive areas and avoid these, prevent water contamination | C3 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | Exemptions from GNR 704 | | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, | Habitat destruction, loss of populations of threatened plant species, loss of populations | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and | Demarcate sensitive areas and avoid these, control dust. | C1 | Level 6 Risk | Environmental Manager | During the post-closure | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |

| POST CLOSURE PHASE – Management Measures | | Risk Level Before Mitigation | Mitigator Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | | |
|--|--|--|----------------------|---|--|--|--|-----------------------|-------------------------------|------------------------|-------------------|---------------------|------------------|------------------------|---|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment | |
| reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | of medicinal plant species, habitat fragmentation. | | | populations of sensitive plant species | | | | | phase | | | | | | |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate sensitive areas and avoid these, control dust. | C1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual | |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate sensitive areas and avoid these, control dust. | C1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual | |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats and populations of sensitive plant species | Demarcate sensitive areas and avoid these, control dust. | C1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual | |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | | | |
| NEMWA Section 19(3) and GN 718. | None. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | MINE SHAFT AREAS | | | | | | | | |
| Rehabilitation & closure | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation, change in physical abiotic conditions. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Demarcate sensitive areas and avoid these, control dust. | C1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual | |
| All other remaining operational shafts (Main Shaft, West Shaft and Ithembaletu Shaft) and decommissioned shafts (North Shaft and North-West Shaft). | Habitat destruction, loss of populations of threatened plant species, loss of populations of medicinal plant species, habitat fragmentation, change in physical abiotic conditions. | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Demarcate sensitive areas and avoid these, control dust. | C1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual | |
| UNDERGROUND MINING ACTIVITIES OF THE NOS 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NOS 2 AND 4 COAL SEAM | | | | | UNDERGROUND MINING ACTIVITIES OF THE NOS 2 AND 4 COAL SEAM | | | | | | | | |
| None. | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | CONVEYOR BELT ROUTE | | | | | | | | |
| Rehabilitation & closure | Habitat destruction | Level 6 Risk | MEDIUM | Prevent unnecessary damage to natural habitats | Demarcate sensitive areas and avoid these, control dust. | C1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual | |
| Animal Life | | Animal Life | | | | | Animal Life | | | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Habitat Loss: Should it be decided that certain buildings or infrastructure remain after mine closure for use in other activities, it would result in the continued loss of habitat. | Level 5 Risk | | Prevent unnecessary vegetation loss | Only infrastructure which will definitely be used in the future should remain. Long-term monitoring of the area should continue to ensure the successful re-establishment of natural vegetation and to prevent invasion by exotic plant species. | C3 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual | |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Habitat Loss: Should it be decided that certain buildings or infrastructure remain after mine closure for use in other activities, it would result in the continued loss of habitat. | Level 6 Risk | | Prevent unnecessary vegetation loss | Only infrastructure which will definitely be used in the future should remain. Long-term monitoring of the area should continue to ensure the successful re-establishment of natural vegetation and to prevent invasion by exotic plant species. | C2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual | |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic | Habitat Loss: Should it be decided that certain buildings or infrastructure remain after mine closure for use in other activities, | Level 5 Risk | medium | Prevent unnecessary vegetation loss | Only infrastructure which will definitely be used in the future should remain. Long-term monitoring of the area should continue to ensure the successful re-establishment of natural | C3 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual | |

| POST CLOSURE PHASE – Management Measures | | Risk Level Before Mitigation | Mitigator Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|--|--|--|----------------------|-------------------------------------|---|--|--|-----------------------|-------------------------------|------------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| metres or more - Activity 1 (n). | it would result in the continued loss of habitat. | | | | vegetation and to prevent invasion by exotic plant species. | | | | | | | | | |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | Habitat Loss: Should it be decided that certain buildings or infrastructure remain after mine closure for use in other activities, it would result in the continued loss of habitat. | Level 6 Risk | medium | Prevent unnecessary vegetation loss | Only infrastructure which will definitely be used in the future should remain. Long-term monitoring of the area should continue to ensure the successful re-establishment of natural vegetation and to prevent invasion by exotic plant species. | C2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Habitat Loss: Should it be decided that certain buildings or infrastructure remain after mine closure for use in other activities, it would result in the continued loss of habitat. | Level 6 Risk | medium | Prevent unnecessary vegetation loss | Only infrastructure which will definitely be used in the future should remain. Long-term monitoring of the area should continue to ensure the successful re-establishment of natural vegetation and to prevent invasion by exotic plant species. | C2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Habitat Loss: Should it be decided that certain buildings or infrastructure remain after mine closure for use in other activities, it would result in the continued loss of habitat. | Level 5 Risk | medium | Prevent unnecessary vegetation loss | Only infrastructure which will definitely be used in the future should remain. Long-term monitoring of the area should continue to ensure the successful re-establishment of natural vegetation and to prevent invasion by exotic plant species. | C3 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Habitat Loss: Should it be decided that certain buildings or infrastructure remain after mine closure for use in other activities, it would result in the continued loss of habitat. | Level 6 Risk | medium | Prevent unnecessary vegetation loss | Only infrastructure which will definitely be used in the future should remain. Long-term monitoring of the area should continue to ensure the successful re-establishment of natural vegetation and to prevent invasion by exotic plant species. | C2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Habitat Loss: Should it be decided that certain buildings or infrastructure remain after mine closure for use in other activities, it would result in the continued loss of habitat. | Level 5 Risk | medium | Prevent unnecessary vegetation loss | Only infrastructure which will definitely be used in the future should remain. Long-term monitoring of the area should continue to ensure the successful re-establishment of natural vegetation and to prevent invasion by exotic plant species. | C3 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | Habitat Loss: Should it be decided that certain buildings or infrastructure remain after mine closure for use in other activities, it would result in the continued loss of habitat. | Level 5 Risk | medium | Prevent unnecessary vegetation loss | Only infrastructure which will definitely be used in the future should remain. Long-term monitoring of the area should continue to ensure the successful re-establishment of natural vegetation and to prevent invasion by exotic plant species. | C3 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | Habitat Loss: Should it be decided that certain buildings or infrastructure remain after mine closure for use in other activities, it would result in the continued loss of habitat. | Level 5 Risk | medium | Prevent unnecessary vegetation loss | Only infrastructure which will definitely be used in the future should remain. Long-term monitoring of the area should continue to ensure the successful re-establishment of natural vegetation and to prevent invasion by exotic plant species. | C3 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | Habitat Loss: Should it be decided that certain buildings or infrastructure remain after mine closure for use in other activities, it would result in the continued loss of habitat. | Level 5 Risk | medium | Prevent unnecessary vegetation loss | Only infrastructure which will definitely be used in the future should remain. Long-term monitoring of the area should continue to ensure the successful re-establishment of natural vegetation and to prevent invasion by exotic plant species. | C3 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | | |
| Taking water from a water resource - Section 21 (a). | None | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | None | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | None | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | None | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | None | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | Habitat Deterioration: Discharging of polluted or contaminated water from the underground workings into the water resource could affect the habitat quality and pose a health risk for fauna causing them to move to more suitable habitat | Level 5 Risk | medium | Prevent habitat deterioration | Should it become necessary to pump water out of the underground workings, this water should be treated to acceptable quality standards before being discharged into the environment. Any clean water discharged into the environment should be handled in such a way that its discharge does not cause erosion or alter the natural hydrology within wetlands and rivers. | C4 | Level 5 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | Exemptions from GNR 704 | | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes | Habitat Loss: Should it be decided that certain buildings or infrastructure remain after mine closure for use in other activities, it would result in the continued loss of habitat. | Level 5 Risk | medium | Prevent unnecessary vegetation loss | Only infrastructure which will definitely be used in the future should remain. Long-term monitoring of the area should continue to ensure the successful re-establishment of natural vegetation and to prevent invasion by exotic plant species. | C3 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |

| POST CLOSURE PHASE – Management Measures | | Risk Level Before Mitigation | Mitigator y Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|--|---|---|------------------------|-------------------------------------|---|--|---|-----------------------|-------------------------------|------------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | | | | | | | | | | | | | | |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | Habitat Loss: Should it be decided that certain buildings or infrastructure remain after mine closure for use in other activities, it would result in the continued loss of habitat. | Level 5 Risk | medium | Prevent unnecessary vegetation loss | Only infrastructure which will definitely be used in the future should remain. Long-term monitoring of the area should continue to ensure the successful re-establishment of natural vegetation and to prevent invasion by exotic plant species. | C3 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | Habitat Loss: Should it be decided that certain buildings or infrastructure remain after mine closure for use in other activities, it would result in the continued loss of habitat. | Level 5 Risk | medium | Prevent unnecessary vegetation loss | Only infrastructure which will definitely be used in the future should remain. Long-term monitoring of the area should continue to ensure the successful re-establishment of natural vegetation and to prevent invasion by exotic plant species. | C3 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | None | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | | |
| NEMWA Section 19(3) and GN 718. | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | MINE SHAFT AREAS | | | | | | | |
| The continued presence of infrastructure. | Habitat Loss: Should it be decided that certain buildings or infrastructure remain after mine closure for use in other activities, it would result in the continued loss of habitat. | Level 5 Risk | medium | Prevent unnecessary vegetation loss | Only infrastructure which will definitely be used in the future should remain. Long-term monitoring of the area should continue to ensure the successful re-establishment of natural vegetation and to prevent invasion by exotic plant species. | C3 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| All other remaining operational shafts (Main Shaft, West Shaft and Ithembalethu Shaft) and decommissioned shafts (North Shaft and North-West Shaft). | Habitat Loss: Should it be decided that certain buildings or infrastructure remain after mine closure for use in other activities, it would result in the continued loss of habitat. | Level 5 Risk | medium | Prevent unnecessary vegetation loss | Only infrastructure which will definitely be used in the future should remain. Long-term monitoring of the area should continue to ensure the successful re-establishment of natural vegetation and to prevent invasion by exotic plant species. | C3 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | | |
| Complete extraction mining leading to surface subsidence | Habitat Alteration: Should subsidence occur it could lead to a change in the drainage of water within the landscape, resulting in either an increase or decrease in the water present at the surface. If such a change in hydrology causes a change in the vegetation communities present it would result in an increase in habitat for certain species and a loss of habitat for other faunal species. | Level 5 Risk | medium | Prevent Habitat Alteration | No high extraction mining should take place under those areas and habitats classed as sensitive or of high importance in the baseline study. However, should subsidence occur measures must be taken to ensure the continuation of, or if necessary reinstate, the natural hydrology within the landscape. | C4 | Level 5 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Pumping of water from the underground workings | Habitat Deterioration: Discharging of polluted or contaminated water into the water resource could affect the habitat quality and pose a health risk for fauna causing them to move to more suitable habitat | Level 5 Risk | medium | Prevent habitat deterioration | Should it become necessary to pump water out of the underground workings, this water should be treated to acceptable quality standards before being discharged into the environment. Any clean water discharged into the environment should be handled in such a way that its discharge does not cause erosion or alter the natural hydrology within wetlands and rivers. | C4 | Level 5 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | CONVEYOR BELT ROUTE | | | | | | | |
| The continued presence of infrastructure | Habitat Loss: Should it be decided that certain buildings or infrastructure remain after mine closure for use in other activities, it would result in the continued loss of habitat. | Level 5 Risk | medium | Prevent unnecessary vegetation loss | Only infrastructure which will definitely be used in the future should remain. Long-term monitoring of the area should continue to ensure the successful re-establishment of natural vegetation and to prevent invasion by exotic plant species. | C3 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| | | Risk Level Before Mitigation | Mitigator y Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
| | | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Wetlands | | Wetlands | | | | | Wetlands | | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | | |

| POST CLOSURE PHASE – Management Measures | | Risk Level Before Mitigation | Mitigator Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|--|--|----------------------|---|--|--|-----------------------------|--|-------------------------------|------------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | The disturbed area might be colonised by alien vegetation and be exposed to erosion. | Level 6 Risk | Moderate | Control alien vegetation invasions and prevent erosion damage | Regular long-term monitoring of rehabilitated sites should be undertaken to determine success of rehabilitation measures and to undertake corrective action should alien vegetation or erosion damage be observed on site. | C2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | The disturbed area might be colonised by alien vegetation and be exposed to erosion. | Level 6 Risk | Moderate | Control alien vegetation invasions and prevent erosion damage | Regular long-term monitoring of rehabilitated sites should be undertaken to determine success of rehabilitation measures and to undertake corrective action should alien vegetation or erosion damage be observed on site. | C2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | The disturbed area might be colonised by alien vegetation and be exposed to erosion. | Level 6 Risk | Moderate | Control alien vegetation invasions and prevent erosion damage | Regular long-term monitoring of rehabilitated sites should be undertaken to determine success of rehabilitation measures and to undertake corrective action should alien vegetation or erosion damage be observed on site. | C2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | The disturbed area might be colonised by alien vegetation and be exposed to erosion. | Level 6 Risk | Moderate | Control alien vegetation invasions and prevent erosion damage | Regular long-term monitoring of rehabilitated sites should be undertaken to determine success of rehabilitation measures and to undertake corrective action should alien vegetation or erosion damage be observed on site. | C2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | The disturbed area might be colonised by alien vegetation and be exposed to erosion. | Level 6 Risk | Moderate | Control alien vegetation invasions and prevent erosion damage | Regular long-term monitoring of rehabilitated sites should be undertaken to determine success of rehabilitation measures and to undertake corrective action should alien vegetation or erosion damage be observed on site. | C2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | The disturbed area might be colonised by alien vegetation and be exposed to erosion. | Level 6 Risk | Moderate | Control alien vegetation invasions and prevent erosion damage | Regular long-term monitoring of rehabilitated sites should be undertaken to determine success of rehabilitation measures and to undertake corrective action should alien vegetation or erosion damage be observed on site. | C2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | Not applicable to the post-closure phase | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | The disturbed area might be colonised by alien vegetation and be exposed to erosion. | Level 6 Risk | Moderate | Control alien vegetation invasions and prevent erosion damage | Regular long-term monitoring of rehabilitated sites should be undertaken to determine success of rehabilitation measures and to undertake corrective action should alien vegetation or erosion damage be observed on site. | C2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | The disturbed area might be colonised by alien vegetation and be exposed to erosion. | Level 6 Risk | Moderate | Control alien vegetation invasions and prevent erosion damage | Regular long-term monitoring of rehabilitated sites should be undertaken to determine success of rehabilitation measures and to undertake corrective action should alien vegetation or erosion damage be observed on site. | C2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | The disturbed area might be colonised by alien vegetation and be exposed to erosion. | Level 6 Risk | Moderate | Control alien vegetation invasions and prevent erosion damage | Regular long-term monitoring of rehabilitated sites should be undertaken to determine success of rehabilitation measures and to undertake corrective action should alien vegetation or erosion damage be observed on site. | C2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | The disturbed area might be colonised by alien vegetation and be exposed to erosion. | Level 6 Risk | Moderate | Control alien vegetation invasions and prevent erosion damage | Regular long-term monitoring of rehabilitated sites should be undertaken to determine success of rehabilitation measures and to undertake corrective action should alien vegetation or erosion damage be observed on site. | C2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | The disturbed area might be colonised by alien vegetation and be exposed to erosion. | Level 6 Risk | Moderate | Control alien vegetation invasions and prevent erosion damage | Regular long-term monitoring of rehabilitated sites should be undertaken to determine success of rehabilitation measures and to undertake corrective action should alien vegetation or erosion damage be observed on site. | C2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | |
| Taking water from a water resource - Section 21 (a). | Not applicable to the post-closure phase | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | The disturbed area might be colonised by alien vegetation and be exposed to erosion. | Level 6 Risk | Moderate | Control alien vegetation invasions and prevent erosion damage | Regular long-term monitoring of rehabilitated sites should be undertaken to determine success of rehabilitation measures and to undertake corrective action should alien vegetation or erosion damage be observed on site. | C2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | Not applicable to the post-closure phase | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | The disturbed area might be colonised by alien vegetation and be exposed to erosion. | Level 6 Risk | Moderate | Control alien vegetation invasions and prevent erosion damage | Regular long-term monitoring of rehabilitated sites should be undertaken to determine success of rehabilitation measures and to undertake corrective action should alien vegetation or erosion damage be observed on site. | C2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | The disturbed area might be colonised by alien vegetation and be exposed to erosion. | Level 6 Risk | Moderate | Control alien vegetation invasions and prevent erosion damage | Regular long-term monitoring of rehabilitated sites should be undertaken to determine success of rehabilitation measures and to undertake corrective action should alien vegetation or erosion damage be observed on site. | C2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | Not applicable to the post-closure phase | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | | Exemptions from GNR 704 | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, | The disturbed area might be colonised by alien vegetation and be exposed to erosion. | Level 6 Risk | Moderate | Control alien vegetation invasions and prevent | Regular long-term monitoring of rehabilitated sites should be undertaken to determine success of rehabilitation measures and | C2 | Level 6 Risk | Environmental Manager | During the post-closure | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |

| POST CLOSURE PHASE – Management Measures | | Risk Level Before Mitigation | Mitigator Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|--|--|--|-----------------------------|---|---|---|------------------------------|--|-------------------------------|------------------------|--------------------------|----------------------------|-------------------------|-------------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | | | | erosion damage | to undertake corrective action should alien vegetation or erosion damage be observed on site. | | | | phase | | | | | |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | Undermining of wetlands could result in wetland loss and degradation where surface subsidence occurs. Fractures in the strata underlying the wetlands could result in loss of surface water to groundwater, leading to desiccation of wetlands and changes in species composition. | Level 6 Risk | High | Prevent surface subsidence under wetlands | Ideally no surface subsidence should be allowed to take place, especially not underneath the floodplain wetlands and larger valley bottom wetlands. The mine plan/mining method should be adjusted accordingly. | C2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | The disturbed area might be colonised by alien vegetation and be exposed to erosion. | Level 6 Risk | Moderate | Control alien vegetation invasions and prevent erosion damage | Regular long-term monitoring of rehabilitated sites should be undertaken to determine success of rehabilitation measures and to undertake corrective action should alien vegetation or erosion damage be observed on site. | C2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | The disturbed area might be colonised by alien vegetation and be exposed to erosion. | Level 6 Risk | Moderate | Control alien vegetation invasions and prevent erosion damage | Regular long-term monitoring of rehabilitated sites should be undertaken to determine success of rehabilitation measures and to undertake corrective action should alien vegetation or erosion damage be observed on site. | C2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | |
| NEMWA Section 19(3) and GN 718. | The disturbed area might be colonised by alien vegetation and be exposed to erosion. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | | MINE SHAFT AREAS | | | | | | |
| Shaft area | The disturbed area might be colonised by alien vegetation and be exposed to erosion. | Level 6 Risk | Moderate | Control alien vegetation invasions and prevent erosion damage | Regular long-term monitoring of rehabilitated sites should be undertaken to determine success of rehabilitation measures and to undertake corrective action should alien vegetation or erosion damage be observed on site. | C2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| All other remaining operational shafts (Main Shaft, West Shaft and Ithembalethu Shaft) and decommissioned shafts (North Shaft and North-West Shaft). | The disturbed area might be colonised by alien vegetation and be exposed to erosion. | Level 6 Risk | Moderate | Control alien vegetation invasions and prevent erosion damage | Regular long-term monitoring of rehabilitated sites should be undertaken to determine success of rehabilitation measures and to undertake corrective action should alien vegetation or erosion damage be observed on site. | C2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| UNDERGROUND MINING ACTIVITIES OF THE NOS 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NOS 2 AND 4 COAL SEAM | | | | | | UNDERGROUND MINING ACTIVITIES OF THE NOS 2 AND 4 COAL SEAM | | | | | | |
| Underground mining. | Decanting of polluted mine water expected to have a high salt load and to potentially be acidic | Level 6 Risk | High | Limit water quality deterioration | The volume, location and expected quality of decant should be determined. Decant will need to be managed to prevent deterioration of the receiving water resource. Where decanting water does not comply with the RWQO, this water will need to be captured and treated to the required standards prior to release. | C2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | | CONVEYOR BELT ROUTE | | | | | | |
| Conveyor route | The disturbed area might be colonised by alien vegetation and be exposed to erosion. | Level 6 Risk | Moderate | Control alien vegetation invasions and prevent erosion damage | Regular long-term monitoring of rehabilitated sites should be undertaken to determine success of rehabilitation measures and to undertake corrective action should alien vegetation or erosion damage be observed on site. | C2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Activity Description | | Risk Before Mitigation | Mitigator Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk After Mitigation | EMP COMPONENTS | | | | | | |
| Impact Identification/Description | | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Aquatic Ecosystems | | Aquatic Ecosystems | | | | | | Aquatic Ecosystems | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |

| POST CLOSURE PHASE – Management Measures | | Risk Level Before Mitigation | Mitigator y Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|---|--|------------------------|--|--|--|--|-----------------------|-------------------------------|------------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | | | | | | | | | | | | | | |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | Contaminated mine water that is pumped to the water treatment facility, may contaminate surface water, causing acidification and salinisation (especially by sulphates) | Level 3 Risk | Low-High | Prevent contamination of surface water with mine water | Maximise the use of Bord and Pillar mining. Pillar extraction should not coincide with wetlands or watercourses, especially those rated as sensitive or near-pristine (such as the Bankspruit and its tributaries); Ensure water treatment and pumping facilities are adequately maintained and have adequate capacity for the entire post-closure phase | 2 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | | |
| Taking water from a water resource - Section 21 (a). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | Contaminated mine water that is pumped to the water treatment facility, may contaminate surface water, causing acidification and salinisation (especially by sulphates) | Level 3 Risk | Low-High | Prevent contamination of surface water with mine water | Maximise the use of Bord and Pillar mining. Pillar extraction should not coincide with wetlands or watercourses, especially those rated as sensitive or near-pristine (such as the Bankspruit and its tributaries); Ensure water treatment and pumping facilities are adequately maintained and have adequate capacity for the entire post-closure phase | 3 | Level 4 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | Contaminated mine water that is pumped to the water treatment facility, may contaminate surface water, causing acidification and salinisation (especially by sulphates) | Level 3 Risk | Low-High | Prevent contamination of surface water with mine water | Maximise the use of Bord and Pillar mining. Pillar extraction should not coincide with wetlands or watercourses, especially those rated as sensitive or near-pristine (such as the Bankspruit and its tributaries); Ensure water treatment and pumping facilities are adequately maintained and have adequate capacity for the entire post-closure phase | 3 | Level 4 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | Exemptions from GNR 704 | | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may, except in relation to a matter | Subsidence can result in fissures forming above the mined area, leading to loss of | Level 3 Risk | High | Prevent contamination of surface water with mine | Maximise the use of Bord and Pillar mining. Pillar extraction should not coincide with delineated wetlands or watercourses, | 3 | Level 4 Risk | Environmental Manager | During the post-closure | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |

| POST CLOSURE PHASE – Management Measures | | Risk Level Before Mitigation | Mitigator y Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | | |
|---|---|--|------------------------|---|---|--|--|-----------------------|-------------------------------|------------------------|-------------------|---------------------|------------------|------------------------|---|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment | |
| contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | surface water to groundwater or decant of contaminated mine water to surface water, causing acidification or salinisation. | | | water | especially those rated as sensitive or near-pristine (such as the Bankspruit and its tributaries); Ensure water treatment and pumping facilities are adequately maintained and have adequate capacity for the entire post-closure phase | | | | phase | | | | | | |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | | | |
| NEMWA Section 19(3) and GN 718. | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | MINE SHAFT AREAS | | | | | | | | |
| SHONDONI SHAFT AREA | The disturbed area might be colonised by alien vegetation and be exposed to erosion. | Level 5 Risk | Moderate | Control alien vegetation invasions and prevent erosion damage | Regular long-term monitoring of rehabilitated sites should be undertaken to determine success of rehabilitation measures and to undertake corrective action should alien vegetation or erosion damage be observed on site. | 3 | Level 5 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual | |
| All other remaining operational shafts (Main Shaft, West Shaft and Ithembaletu Shaft) and decommissioned shafts (North Shaft and North-West Shaft). | The disturbed area might be colonised by alien vegetation and be exposed to erosion. | Level 5 Risk | Moderate | Control alien vegetation invasions and prevent erosion damage | Regular long-term monitoring of rehabilitated sites should be undertaken to determine success of rehabilitation measures and to undertake corrective action should alien vegetation or erosion damage be observed on site. | 3 | Level 5 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual | |
| UNDERGROUND MINING ACTIVITIES OF THE NOS 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NOS 2 AND 4 COAL SEAM | | | | | UNDERGROUND MINING ACTIVITIES OF THE NOS 2 AND 4 COAL SEAM | | | | | | | | |
| Subsidence/decant/leaks/spills | Subsidence can result in fissures forming above the mined area, leading to loss of surface water to groundwater or decant of contaminated mine water to surface water, causing acidification or salinisation (especially by sulphates). | Level 3 Risk | High | Minimise contamination of surface water with mine water | Maximise the use of Bord and Pillar mining. Pillar extraction should not coincide with wetlands or watercourses, especially those rated as sensitive or near-pristine (such as the Bankspruit and its tributaries); Ensure water treatment and pumping facilities are adequately maintained and have adequate capacity for the entire post-closure phase. Monitor water quality in surface watercourses to ensure timeous management interventions where RWQO are not met. | 1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual | |
| Contamination by mining water (spills/subsidence/seepage) | Loss of sensitive taxa and biodiversity | Level 3 Risk | Medium | Prevent loss of biodiversity | Avoid development/mining/ crossings adjacent/under/across highly sensitive river systems, such as the Bankspruit system. No pillar extraction should be undertaken within this catchment or at least not under Bankspruit tributaries. Apply mitigation for decant/leaks/subsidence. Conduct regular bio-monitoring and water quality monitoring (as recommended) in watercourses using baseline data as a point of reference. Recommendations by specialists in the bio-monitoring reports should be considered incidents that trigger immediate corrective action | 1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual | |
| Decreased base flows and increased channelization of watercourses | Loss of habitats and wetland function | Level 3 Risk | High | Prevent loss of habitats | Stream crossings should be maintained by removing obstructions that may constrict flows and increase erosive forces. Rehabilitation of eroded reaches, particularly floodplains with associated oxbow lakes, should be rehabilitated to stem channel formation and improve floodplain integrity. A wetland rehabilitation plan should be compiled by a wetland specialist and implemented accordingly. | 1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual | |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | CONVEYOR BELT ROUTE | | | | | | | | |
| Pipeline leaks/spills | Acidification of surface water as a result of leaks/ spills of pumped mine water en route to treatment facility | Level 4 Risk | LOW | Prevent spills and emergency preparedness | Crossings should be regularly inspected to ensure no spillage. An emergency preparedness plan should address pipeline leaks en route to the mine water treatment facility and should include measures to avoid contamination of water courses. | 6 | Level 5 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual | |
| Conveyor Route | The disturbed area might be colonised by alien vegetation and be exposed to erosion. | Level 5 Risk | Moderate | Control alien vegetation invasions and prevent erosion damage | Regular long-term monitoring of rehabilitated sites should be undertaken to determine success of rehabilitation measures and to undertake corrective action should alien vegetation or erosion damage be observed on site. | 3 | Level 5 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual | |
| Air Quality | | Air Quality | | | | | Air Quality | | | | | | | | |
| No Management measures specified for the Post-Closure Phase | | No Management measures specified for the Post-Closure Phase | | | | | No Management measures specified for the Post-Closure Phase | | | | | | | | |

| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigator y Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|--|-----------------------------------|--|------------------------|----------------------------------|-----------------------------|--|--|--------------------|---------------|----------------|-------------------|---------------------|------------------|------------------------|
| | | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Noise | | Noise | | | | | Noise | | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Construction of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Installation of a Tetra Radio System above ground at the Shaft Complex Area - Activity 14. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | | |
| Construction of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Construction of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | | |
| Taking water from a water resource - Section 21 (a). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | Exemptions from GNR 704 | | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |

| POST CLOSURE PHASE – Management Measures | | Risk Level Before Mitigation | Mitigator y Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|--|---|------------------------|----------------------------------|-----------------------------|--|---|--------------------|---------------|----------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| | or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | | | | | | | | | | | | | |
| | No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| | No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| | No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | | |
| NEMWA Section 19(3) and GN 718. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | MINE SHAFT AREAS | | | | | | | |
| N/A | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | | |
| N/A | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | CONVEYOR BELT ROUTE | | | | | | | |
| N/A | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Activity Description | Impact Identification/Description | Risk Level Before Mitigation | Mitigator y Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
| | Visuals | | | | Visuals | | | Visuals | | | | | | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 386 ACTIVITIES | | | | | | | |
| Coal throw out stockpile area at Shondoni Shaft with a storage of more than 250 tons but less than 100 000 tons - Activity 1 (c). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Conveyor Pedestal for crossing of Trichardt Spruit (in the 1:10 year flood line) - Activity 1 (m). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Service Water Dams and Storm Water Pollution Control Dam at Shondoni Shaft Complex with a capacity of 50 000 cubic metres or more - Activity 1 (n). | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Excavation for Coal Conveyor Pedestal for crossing of Trichardt Spruit, removing more than 5 cubic meters of material - Activity 4. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Diesel Fuel Storage Tanks at Shondoni Shaft Complex with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres - Activity 7. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of Indigenous Vegetation of 3 hectares or more during Site Clearance for Post-Closure phase of Shondoni Shaft Complex and related Infrastructure - Activity 12. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Removal of water found in the underground workings on the No.4 Seam and the No.2 Seam workings to facilitate the efficient continuation of mining and for the safety of people - Activity 13. | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| Installation of a Tetra Radio System above | Not Applicable | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |

| POST CLOSURE PHASE – Management Measures | | Risk Level Before Mitigation | Mitigator y Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | | |
|---|-----------------------------------|--|------------------------|----------------------------------|-----------------------------|--|--|--------------------|---------------|----------------|-------------------|---------------------|------------------|------------------------|---|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment | |
| ground at the Shaft Complex Area - Activity 14. | | | | | | | | | | | | | | | |
| Post-Closure phase of an Access Road (wider than 4m) to Shondoni Shaft Complex from Tar road R547 - Activity 15. | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |
| LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | LISTED ACTIVITIES AT SHONDONI IN TERMS OF NEMA (ACT 107 OF 1998): GN 387 ACTIVITIES | | | | | | | | |
| Post-Closure phase of a Double Circuit 132 kV Overhead Power line from Eskom Supply Point (SOL B) to Shondoni Mine Transmission Feeder Bays - Activity 1 (l). | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |
| Post-Closure phase of a Coal Conveyor from Shondoni Shaft to Middelbult Main Shaft (to the central Sasol Coal Supply area) at a rate of more than 50 cubic meters per day - Activity 1 (j). | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |
| Development of an area including shaft surface infrastructure and conveyor route where more than 20 hectares is disturbed - Activity 2. | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |
| NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | NATIONAL WATER ACT (ACT 36 OF 1998): SECTION 40 | | | | | | | | |
| Taking water from a water resource - Section 21 (a). | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |
| Impeding or diverting the flow of water in a watercourse - Section 21 (c). | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |
| Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit - Section 21 (f). | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |
| Disposing of waste in a manner which may detrimentally impact on a water resource - Section 21 (g). | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |
| Altering the bed, banks, course or characteristics of a watercourse - Section 21 (i). | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |
| Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people - Section 21 (j). | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |
| Exemptions from GNR 704 | | Exemptions from GNR 704 | | | | | Exemptions from GNR 704 | | | | | | | | |
| No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir together with any associated structure or any other facility within the 1:100 year flood line or within a horizontal distance of 100 metres from any water course or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked - Regulation 4(a). | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may, except in relation to a matter contemplated in Regulation 10 (winning sand and alluvial minerals), carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood line or within a horizontal distance of 100 metres from any water course or estuary, whichever is the greatest - Regulation 4(b). | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| No person in control of a mine or activity may use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood line of any water course or estuary - Regulation 4(d). | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |
| No person in control of a mine or activity may use any residue or substance which causes or is likely to cause pollution of a water resource for the construction of any dam or other impoundment or any embankment, road or railway, or for any other purpose which is likely to cause pollution of a water resource - Regulation 5. | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | |
| NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | NATIONAL ENVIRONMENTAL MANAGEMENT ACT: WASTE ACT, ACT NO. 59 OF 2008 | | | | | | | | |

| POST CLOSURE PHASE – Management Measures | | Risk Level Before Mitigation | Mitigator y Difficulty | Mitigation/ Management Objective | Proposed Mitigation Measure | Severity Total After Mitigation - C Number | Risk Level After Mitigation | EMP COMPONENTS | | | | | | |
|---|--|---|------------------------|----------------------------------|-----------------------------|--|---|-----------------------|-------------------------------|------------------------|-------------------|---------------------|------------------|------------------------|
| Activity Description | Impact Identification/Description | | | | | | | Responsible Person | Time schedule | Budget Quantum | Budget Allocation | Provisioning Method | Compliance Audit | Performance Assessment |
| Not Applicable | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| MINE SHAFT AREAS | | MINE SHAFT AREAS | | | | | MINE SHAFT AREAS | | | | | | | |
| Rehabilitated Shondoni Shaft area | Visible from R547; has impact on short to medium range views on road users | Level 6 Risk | - | Positive Impact | None Required | C1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| | Visibility impact for long range views from east | Level 6 Risk | - | Positive Impact | None Required | C1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| | Alterations to Landscape and Visual Character (Morphology & Topography) – Landscape back to previous character | Level 6 Risk | - | Positive Impact | None Required | C1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | UNDERGROUND MINING ACTIVITIES OF THE NO.S 2 AND 4 COAL SEAM | | | | | | | |
| None. | | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| CONVEYOR BELT ROUTE | | CONVEYOR BELT ROUTE | | | | | CONVEYOR BELT ROUTE | | | | | | | |
| Rehabilitated Conveyor Belt route | Visible from R547 and Brendan Village; has impact on short to medium range views on road users and residents | Level 6 Risk | - | Positive Impact | None Required | C1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| | Visibility impact for long range views | Level 6 Risk | - | None Available | None Available | C1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| | Visual Exposure impact for road users of R547 as well as Brendan Village residents | Level 6 Risk | - | Positive Impact | None Required | C1 | Level 6 Risk | Environmental Manager | During the post-closure phase | Part of closure costs. | Trust fund. | Trust fund. | Annual | Annual |
| Heritage | | Heritage | | | | | Heritage | | | | | | | |
| Only Construction phase applicable | | Only Construction phase applicable | | | | | Only Construction phase applicable | | | | | | | |
| Socio-Economic | | Socio-Economic | | | | | Socio-Economic | | | | | | | |
| Please refer to Sasol Shondoni Social and Labour Plan | | Please refer to Sasol Shondoni Social and Labour Plan | | | | | Please refer to Sasol Shondoni Social and Labour Plan | | | | | | | |

7.4 EMERGENCY ACTION PLANS

Emergency actions were considered for the following major bio-physical components:

- Ground Water
- Surface Water
- Plant Life
- Animal Life
- Aquatic Ecosystems

From a ground water management perspective, no emergency action plans are required at Middelbult – Block 8 – Shondoni. The ground water monitoring system will provide early warning of any ground water quality related impacts. Due to the relatively slow manifestation times for ground water impacts, sufficient reaction times will be available to implement any reactive measures.

For surface water, during the operational phase, and even after site rehabilitation has been completed and the vegetation has been re-established, periodic monitoring of the surface water quality will be done and emergency action plans will only be required if significant volumes of polluted surface water is discharged into the natural environment.

To this effect it is necessary to inspect the site on a regular routine basis (at least once a year) and also after heavy rainfall equivalent to at least the extreme wet conditions in order to assess the condition of the site and of any rehabilitated facilities. Where serious erosion or spillages are noted the appropriate remedial actions must be taken to ensure that such erosion or spillages do not occur again.

However, should a significant volume of polluted surface water be discharged to the receiving environment it is imperative that the immediate downstream users of the Surface Drainage Features be notified of such an event in order that appropriate actions can be taken to mitigate such an event i.e. diversion and containment of the contaminated surface water in a suitable location.

For Plant Life, Animal Life and Aquatic Ecosystems the main emergencies also relate to spillages of harmful substances during the operation of the Shaft Areas and Conveyor Routes. In the event of a spill, measures to contain the spill and reduce the area affected should be initiated as soon as possible. Spill containment kits should be made permanently available and the relevant personnel trained in the use of the kits. Once the spill is under control measures to remove contaminated material must be initiated immediately. All contaminated soils must be disposed of at a suitable waste disposal site.

If any surface water features are contaminated or if it is expected that they have become contaminated, immediate sampling and analyses of the water should take place to identify the extent and severity of the contamination. The Department of Water Affairs should also be immediately notified.

If it is expected that there will be a significant impact on the floral, faunal or aquatic and riparian community, it must be ensured that an aquatic ecological assessment is undertaken as soon as possible by a suitably qualified aquatic ecologist. The scope of any such assessment should be defined in collaboration with the aquatic ecologist.

If any fires break out, the fire must be controlled in such a way as to prevent an impact on the wetlands and riparian zones.



The implementation schedule for all proposed management measures, during all the life cycle phases, are indicated in the Management Measure Tables. Most of the measures proposed in the EMP, will be relevant to the construction phase and as such they are mostly part and parcel of the facility design as required for construction.

In general the implementation protocol would follow the following sequence:

- Identify the relevant activity.
- Verify the Impact Risk Rating and prioritize accordingly.
- Assess all measures required during all the life cycle phases of the specific activity.
- Confirm that the required authorization for the activity and/or measure has been obtained – if not start application.
- Confirm that the engineering design for the activity and/or measure has been completed and approved by the regulating authority.
- Obtain approval for the financial expenditure.
- Tender, if required, and appoint contractor.
- Construct.
- Commission.
- Operate.
- Monitor efficiency.

Application of the Construction Phase, Operational Phase and Decommissioning Phase implementation protocols, is the responsibility of the designated Environmental Manager for Middelbult Colliery. Post Closure, it becomes the responsibility of the Sasol Mining Group Environmental Manager.

7.6 EMP COMPLIANCE MONITORING AND REPORTING

The EMP Tables also contain columns to assess compliance with the implementation protocol and schedule, as well as to audit the efficiency of the proposed management measures. The time frames for compliance assessment and auditing, which are determined largely by the length of the specific life cycle phase, are also given in the EMP Tables.



7.7.1 Environmental Management Commitments

Overall Environmental Management Commitments are entrenched in the SASOL Safety Health & Environmental Policy, a copy of which is shown in Figure 7.7.1(a) below.



safety, health & environmental policy

We, the people of Sasol, striving for excellence in all we do, recognise the impact that our activities can have on people and the environment. Safety, health and protection of the environment will form an integral part of our planning and decision making. We will manage our company, wherever we do business, in an ethical way that strikes an appropriate and well reasoned balance between economic, social and environmental needs.

We are committed to:

- Conducting our business with respect and care for people and the environment
- Responsible utilisation of natural resources
- Implementing responsible care for all Sasol's chemical and associated businesses. Non-chemical businesses will implement appropriate, recognised codes of practice
- Continually improving our safety, health and environmental performance
- Complying, as a minimum, with all applicable legal and other agreed requirements
- Promoting dialogue with stakeholders about safety, health and environmental performance

We will achieve these by:

- Implementing internationally recognised safety, health, environmental and quality management systems
- Developing and implementing inherently safer and cleaner technologies

- A "cradle to grave" approach to the products we develop, manufacture, use, distribute and sell
- Informing and appropriately training all employees and contractors on safety, health and environmental matters
- Responding effectively to safety, health and environmental emergencies involving our operations and products
- Engaging with relevant authorities and institutions on the formulation of legislation, standards and the implementation thereof
- Benchmarking internationally on best safety, health and environmental practices
- Sharing safety, health and environmental risk reduction best practices throughout Sasol
- Providing appropriate resources required to implement the above


Pat Davies
 Chief executive





Figure 7.7.1(a): SASOL Safety Health & Environmental Policy

7.7.2 Environmental Compensation Protocols

Sasol Mining has a Standard Operation Procedure to investigate complaints and/or claims from parties who claim to be affected, to assess the degree of influence caused by its mining activities on the environment, and to determine the format and quantum of compensation.

7.7.3 Calculation for Financial Provisioning

The calculation for financial provisioning for the implementation of Environmental Management and Closure Measures are done on a routine as well as project specific basis at Sasol Mining.

In determining Financial Provision, Sasol Mining utilizes the “Guideline Document for the Evaluation of the Quantum of Closure Related Financial Provision to be Provided by a Mine”.

The closure provision model is based on the fact that Sasol Mining is a coal mine and ranked as a medium risk in the abovementioned guidelines.

The model was based on the detailed itemisation listed in Table 12 of the Guidelines and the associated costs required for premature closure. The worst case scenario was taken into consideration and therefore the associated factors were used.

The following items were excluded from the closure costs:

- No housing facilities will be provided on site,
- Middelbult Sasol Mining is an underground mine therefore it will not have any open cast activities that will require rehabilitation,
- From a previous groundwater specialist study undertaken by IGS it was depicted that the mine will not decant and, due to the characteristics of the coal, it will not generate acid either.

Taking the abovementioned into consideration, Sasol Mining will continue to evaluate their financial provision on an annual basis to ensure that unforeseen impacts omitted during the initial impact assessment will be included into the costing model.

The Financial Provisioning for the existing Middelbult Operations, as revised during November 2010, is attached as Table 7.7.3(a).

The Financial Provisioning calculated for the Shondoni Project during November 2010, an amount in addition to that provided for the existing Middelbult Operations, is attached as Table 7.7.3(b).

Table 7.7.3(a): Closure Cost Provision for Existing Middelbult – Block 8 Operations

| FINAL SUMMARY CLOSURE COSTS | | | | | | | | |
|-----------------------------|-------------------------------|----------------------------|--------------------------------|--------------------|------------------------|----------------|---|------------|
| COMPANY | SASOL MINING (PTY) LTD | | | | | | PREPARED BY | H Wijtman |
| MINE NAME | Middelbult Mine | | | | | | CHECKED BY | H.A Dhulab |
| CURRENCY | ZAR | | | | | | DATE COMPILED | 04/09/2007 |
| BASE DATE | 02 February 2010 | | | | | | Revision DATE | 02/02/2011 |
| PHASE | DESCRIPTION | CLOSURE Calendar Year | REMAINING TONS Million tons | DEMOLITION COST | REHABILITATION COST | WATER COSTS | POST CLOSURE COST | TOTAL |
| 1 | DEMOLITION AND REHABILITATION | Refer to individual Shafts | | 28,064,907 | 1,158,831 | 0 | 160,408 | 29,384,145 |
| 2 | MANAGEMENT AND SUPERVISION | Refer to individual Shafts | | 0 | 0 | 0 | 0 | 0 |
| | SUB TOTAL | | 273 | 28,064,907 | 1,158,831 | 0 | 160,408 | 29,384,145 |
| | CONTINGENCY | | | | | | As detailed in the Phase Summary | Included |
| | TOTAL BASE DATE COSTS | | | | | | | 29,384,145 |
| | ESCALATION | | | | | | To be Calculated and provided by SASOL MINING | Excluded |
| APPROVED BY: | MINE MANAGER | | | Kobus Louw | | | 12-Nov-10 DATE | |
| APPROVED BY: | FINANCIAL MANAGER | | | Linda Moolman | | | 12-Nov-10 DATE | |
| APPROVED BY: | PLANNING MANAGER | | | Philani Mahaye | | | 12-Nov-10 DATE | |



Table 7.7.3(b): Additional Closure Cost Provision for Proposed Shondoni Shaft Operations

| AREA SUMMARY DEMOLITION AND REHABILITATION | | | | | | | |
|--|-------------------------------|---|-------------------|---------------------|-------------|-------------------|-------------------|
| COMPANY | SASOL MINING (PTY) LTD | | SHONDONI SHAFT | | PREPARED BY | H.A Dhulab | |
| MINE NAME | MIDDELBULT COLLIERY | | | | | | |
| CURRENCY | ZAR | | SHONDONI SHAFT | | | | |
| BASE DATE | 10 November 2010 | | | | | | |
| PHASE | DEMOLITION AND REHABILITATION | | SHONDONI SHAFT | | AREA | SHONDONI SHAFT | |
| Notes: | | | | | | | |
| This area summary reflects each sections job sub totals before contingency. | | | | | | | |
| The sale of assets are not reflected in any of the costs contained in this report. | | | | | | | |
| The estimates are based on the rates calculated in the 2009/2010 Financial Year. | | | | | | | |
| SECTION | JOB | DESCRIPTION | DEMOLITION COST | REHABILITATION COST | WATER COSTS | POST CLOSURE COST | TOTAL |
| 110 | | BATCHING PLANT | 34,863 | 0 | 0 | 0 | 34,863 |
| | 100 | CIVIL AND BUILDING | 15,789 | 0 | 0 | 0 | |
| | 200 | MECHANICAL, STRUCTURAL AND PIPING | 19,074 | 0 | 0 | 0 | |
| | 300 | ELECTRICAL & INSTRUMENTATION | 0 | 0 | 0 | 0 | |
| | 400 | SURFACE REHABILITATION | 0 | 0 | 0 | 0 | |
| | 500 | WATER COSTS | 0 | 0 | 0 | 0 | |
| 120 | | STONEDUST SILO | 19,406 | 0 | 0 | 0 | 19,406 |
| | 100 | CIVIL AND BUILDING | 2,083 | 0 | 0 | 0 | |
| | 200 | MECHANICAL, STRUCTURAL AND PIPING | 10,668 | 0 | 0 | 0 | |
| | 300 | ELECTRICAL & INSTRUMENTATION | 6,654 | 0 | 0 | 0 | |
| | 400 | SURFACE REHABILITATION | 0 | 0 | 0 | 0 | |
| | 500 | WATER COSTS | 0 | 0 | 0 | 0 | |
| 130 | | OFFICES AND BUILDINGS | 8,882,647 | 374,349 | 0 | 70,815 | 9,327,811 |
| | 100 | CIVIL AND BUILDING | 8,882,647 | 0 | 0 | 0 | |
| | 200 | MECHANICAL, STRUCTURAL AND PIPING | 0 | 0 | 0 | 0 | |
| | 300 | ELECTRICAL & INSTRUMENTATION | 0 | 0 | 0 | 0 | |
| | 400 | SURFACE REHABILITATION | 0 | 374,349 | 0 | 70,815 | |
| | 500 | WATER COSTS | 0 | 0 | 0 | 0 | |
| 140 | | WASTE WATER SYSTEM | 1,043,206 | 1,273,003 | 0 | 536,480 | 2,852,688 |
| | 100 | CIVIL AND BUILDING | 693,715 | 0 | 0 | 0 | |
| | 200 | MECHANICAL, STRUCTURAL AND PIPING | 349,490 | 0 | 0 | 0 | |
| | 300 | ELECTRICAL & INSTRUMENTATION | 0 | 0 | 0 | 0 | |
| | 400 | SURFACE REHABILITATION | 0 | 1,273,003 | 0 | 536,480 | |
| | 500 | WATER COSTS | 0 | 0 | 0 | 0 | |
| 150 | | STOCKPILES AND WASTE DUMPS | 0 | 0 | 0 | 0 | 0 |
| | 100 | CIVIL AND BUILDING | 0 | 0 | 0 | 0 | |
| | 200 | MECHANICAL, STRUCTURAL AND PIPING | 0 | 0 | 0 | 0 | |
| | 300 | ELECTRICAL & INSTRUMENTATION | 0 | 0 | 0 | 0 | |
| | 400 | SURFACE REHABILITATION | 0 | 0 | 0 | 0 | |
| | 500 | WATER COSTS | 0 | 0 | 0 | 0 | |
| 160 | | BULK WATER SUPPLY AND ELECTRICAL SUPPLY | 47,040 | 0 | 0 | 0 | 47,040 |
| | 100 | CIVIL AND BUILDING | 4,931 | 0 | 0 | 0 | |
| | 200 | MECHANICAL, STRUCTURAL AND PIPING | 0 | 0 | 0 | 0 | |
| | 300 | ELECTRICAL & INSTRUMENTATION | 42,109 | 0 | 0 | 0 | |
| | 400 | SURFACE REHABILITATION | 0 | 0 | 0 | 0 | |
| | 500 | WATER COSTS | 0 | 0 | 0 | 0 | |
| 170 | | SURFACE COAL HANDLING, INCL. CONVEYORS | 1,317,943 | 0 | 0 | 0 | 1,317,943 |
| | 100 | CIVIL AND BUILDING | 0 | 0 | 0 | 0 | |
| | 200 | MECHANICAL, STRUCTURAL AND PIPING | 1,317,943 | 0 | 0 | 0 | |
| | 300 | ELECTRICAL & INSTRUMENTATION | 0 | 0 | 0 | 0 | |
| | 400 | SURFACE REHABILITATION | 0 | 0 | 0 | 0 | |
| | 500 | WATER COSTS | 0 | 0 | 0 | 0 | |
| 180 | | ACCESS AND SERVICE ROADS | 443,496 | 40,579 | 0 | 13,948 | 498,024 |
| | 100 | CIVIL AND BUILDING | 443,496 | 0 | 0 | 0 | |
| | 200 | MECHANICAL, STRUCTURAL AND PIPING | 0 | 0 | 0 | 0 | |
| | 300 | ELECTRICAL & INSTRUMENTATION | 0 | 0 | 0 | 0 | |
| | 400 | SURFACE REHABILITATION | 0 | 40,579 | 0 | 13,948 | |
| | 500 | WATER COSTS | 0 | 0 | 0 | 0 | |
| 190 | | SILO AND RAILWAY SIDINGS | 0 | 0 | 0 | 0 | 0 |
| | 100 | CIVIL AND BUILDING | 0 | 0 | 0 | 0 | |
| | 200 | MECHANICAL, STRUCTURAL AND PIPING | 0 | 0 | 0 | 0 | |
| | 300 | ELECTRICAL & INSTRUMENTATION | 0 | 0 | 0 | 0 | |
| | 400 | SURFACE REHABILITATION | 0 | 0 | 0 | 0 | |
| | 500 | WATER COSTS | 0 | 0 | 0 | 0 | |
| 200 | | SHAFTS AND RAISEBORES | 6,246,943 | 0 | 0 | 0 | 6,246,943 |
| | 100 | CIVIL AND BUILDING | 0 | 0 | 0 | 0 | |
| | 200 | MECHANICAL, STRUCTURAL AND PIPING | 1,112,712 | 0 | 0 | 0 | |
| | 300 | ELECTRICAL & INSTRUMENTATION | 22,232 | 0 | 0 | 0 | |
| | 400 | SURFACE REHABILITATION | 0 | 0 | 0 | 0 | |
| | 500 | SHAFTS AND RAISEBORES | 5,112,000 | 0 | 0 | 0 | |
| | 600 | WATER COSTS | 0 | 0 | 0 | 0 | |
| 210 | | DAMS | 964,030 | 11,600 | 0 | 0 | 975,630 |
| | 100 | CIVIL AND BUILDING | 926,780 | 0 | 0 | 0 | |
| | 200 | MECHANICAL, STRUCTURAL AND PIPING | 36,275 | 0 | 0 | 0 | |
| | 300 | ELECTRICAL & INSTRUMENTATION | 975 | 0 | 0 | 0 | |
| | 400 | SURFACE REHABILITATION | 0 | 11,600 | 0 | 0 | |
| | 500 | WATER COSTS | 0 | 0 | 0 | 0 | |
| 220 | | SUNDRY AREA REHABILITATION | 0 | 0 | 0 | 0 | 0 |
| | 100 | CIVIL AND BUILDING | 0 | 0 | 0 | 0 | |
| | 200 | MECHANICAL, STRUCTURAL AND PIPING | 0 | 0 | 0 | 0 | |
| | 300 | ELECTRICAL & INSTRUMENTATION | 0 | 0 | 0 | 0 | |
| | 400 | SURFACE REHABILITATION | 0 | 0 | 0 | 0 | |
| | 500 | WATER COSTS | 0 | 0 | 0 | 0 | |
| 230 | | WATER COSTS | 0 | 0 | 0 | 0 | 0 |
| | 500 | WATER COSTS | 0 | 0 | 0 | 0 | |
| 240 | | SPARE 1 | 0 | 0 | 0 | 0 | 0 |
| | 100 | CIVIL AND BUILDING | 0 | 0 | 0 | 0 | |
| | 200 | MECHANICAL, STRUCTURAL AND PIPING | 0 | 0 | 0 | 0 | |
| | 300 | ELECTRICAL & INSTRUMENTATION | 0 | 0 | 0 | 0 | |
| | 400 | SURFACE REHABILITATION | 0 | 0 | 0 | 0 | |
| | 500 | WATER COSTS | 0 | 0 | 0 | 0 | |
| | | SUB TOTAL | 18,999,574 | 1,699,530 | 0 | 621,244 | 21,320,348 |
| 270 | | CONTINGENCY % | 0.00% | 0.00% | 0.00% | 0.00% | 0 |
| | | GRAND TOTAL | 18,999,574 | 1,699,530 | 0 | 621,244 | 21,320,348 |

7.7.4 Mechanism to Provide the Funding

All capital expenditure during the Construction and Operational Phases are provided through CAPEX Budgets subject to Board approval.

Operational environmental costs such as maintenance and monitoring are funded through the annual operational budget of the Mine. These expenses are budgeted for, and approved on an annual basis as part of the Mine OPEX budget.

Funds required for Decommissioning and Closure for existing Middelbult Operations, as reflected in Table 7.7.3(a) are held in a Trust Fund.

Funds required for Decommissioning and Closure for the proposed Shondoni Project will eventually be deposited into a Trust Fund. For the moment a guarantee would be provided.

7.8 ENVIRONMENTAL AWARENESS PLAN

Section 39 of the MPRDA requires Sasol Mining to develop an environmental awareness plan to inform the employees of any environmental risks which may result from their work. In addition to this, environmental awareness training has been identified during the EIA process as a mitigatory measure to prevent and minimise impacts on the receiving environment. Sasol Mining recognises the role of the environmental awareness plan in preventing and minimising its impacts from mining operations on the environment.

Therefore the objectives of the environmental awareness plan will be:

- To educate employees regarding their role in conserving the environment and the importance of conserving natural resources,
- To identify environmental training needs for employees and contractors at all levels,
- To ensure that employees whose work could cause significant environmental impact as identified by the mine are competent to perform those tasks to which they are assigned,
- To enable employees to identify environmental impacts or non-conformances of their work activities on the environment,
- To familiarise employees with emergency preparedness and response requirements.
- To be aware of the potential consequences of deviation from specified operating procedures, and
- To conduct their work and manage mining activities in an environmentally responsible manner.

7.8.1 Training Needs Analyses

A needs analysis for environmental awareness has been compiled as part of the ISO 14001 Environmental Management System – Table 7.8.1(a)

7.8.2 Training Requirements

7.8.2.1 Induction Training

All new employees and contractors who will be doing work on the mine will undergo induction training. It is therefore suggested that basic environmental training should form part of this training.

All existing and new employees will undergo annual induction training when they need to renew their Red Ticket and undergo an annual medical check up.

The induction training will be a broad introduction to what the environment is and the reasons why it is important to conserve the animals, plants, water and other natural resources.

Table 7.8.1(a): Environmental Training Needs Analyses

| Type of Training | Employees requiring training | Source of training | Frequency |
|---|---|---|---|
| EMS awareness training | <ul style="list-style-type: none"> All permanent employees All full time on-site contractors | <ul style="list-style-type: none"> External source Induction training offered by Sigma Environmental topics developed by Environmental Management Dept | <ul style="list-style-type: none"> New hires Monthly in Indaba sessions Weekly Annually |
| EMS auditor training | <ul style="list-style-type: none"> ISO Coordinator | <ul style="list-style-type: none"> External source | <ul style="list-style-type: none"> Initially |
| EMS document training | <ul style="list-style-type: none"> Line management Line management for full time on-site contractors | <ul style="list-style-type: none"> ISO Coordinator | <ul style="list-style-type: none"> Initially New hires When document changes occur |
| Fire fighting (veld fires) | <ul style="list-style-type: none"> Chief Security Senior Security | <ul style="list-style-type: none"> Sasol Fire Brigade | <ul style="list-style-type: none"> Bi-annual |
| Environmental Law | <ul style="list-style-type: none"> ISO Coordinator Appointed Management Representative | <ul style="list-style-type: none"> External source | <ul style="list-style-type: none"> Initially |
| Environmental Law update | <ul style="list-style-type: none"> ISO Coordinator Appointed Management Representative | <ul style="list-style-type: none"> External source | <ul style="list-style-type: none"> Annually or as law gets updated |
| HCS | <ul style="list-style-type: none"> Cleaners Painters Employees using herbicides and pesticides | <ul style="list-style-type: none"> Line management (through MSDS) | <ul style="list-style-type: none"> As products are used After purchasing of new products |
| PCB's | <ul style="list-style-type: none"> HT personnel | <ul style="list-style-type: none"> Line management | <ul style="list-style-type: none"> Initially When document changes occur |
| Waste management | <ul style="list-style-type: none"> All permanent employees All fulltime contractors on-site | <ul style="list-style-type: none"> EMS Coordinator / Principle Instructor Line management | <ul style="list-style-type: none"> As necessary |
| Environmental Policy | <ul style="list-style-type: none"> All permanent employees All fulltime contractors on-site | <ul style="list-style-type: none"> EMS Coordinator / Principle Instructor Line management | <ul style="list-style-type: none"> On going As the policy changes |
| Non-conformance and environmental incident reporting | <ul style="list-style-type: none"> All permanent employees All fulltime contractors on-site | <ul style="list-style-type: none"> EMS Coordinator / Principle Instructor Line management | <ul style="list-style-type: none"> Annually As the procedure changes |
| Emergency preparedness and response | <ul style="list-style-type: none"> All permanent employees All fulltime contractors on-site | <ul style="list-style-type: none"> EMS Coordinator / Principle Instructor Line management | <ul style="list-style-type: none"> Annually As the procedure changes |
| Work instructions (SOP's) as per ISO 14001:2004 element 4.4.6 (operational control) | <ul style="list-style-type: none"> All employees and contractors whose work may have significant impacts | <ul style="list-style-type: none"> EMS Coordinator / Principle Instructor Line management | <ul style="list-style-type: none"> Annually When document changes occur |

The training will include topics but shall not be limited to the following:

- What activities can impact on the environment?
- Type of impacts associated with mining activities,
- Employees' responsibility and role in conserving the environment,
- Actions that will be needed to prevent or minimise the impacts,
- Waste management,
- Water conservation, and
- Emergency response and preparedness procedures.

7.8.2.2 Other Training

Once the employees are trained in the basic environmental aspects more detailed training will be provided on other aspects as they become required but could include but shall not be limited to:

- Waste Management (recycling, reusing),
- Spill kit training, and
- Conservation of natural resources (water, electricity, oil).

This training will be applicable to employees working in areas where these topics are of importance.

7.8.2.3 Awareness Training

Awareness training of employees will be conducted featuring different environmental topics on a monthly basis. These topics will be discussed at their toolbox talks, shift meetings and posted on the notice boards for everyone to see.

These topics will summarise an issue an/or an incident that occurred during the previous month, e.g. the pollution control dam overflowed due to poor housekeeping and maintenance. This method will also be used to disseminate information at the grass root level in an effective and sufficient manner.

7.8.3 Frequency of Training

The frequency of training will be determined by the need for continues training. It is proposed that all employees will be scheduled for annual induction training. Other training will be conducted on an ad hoc basis, which will be determined by the need for specific training, e.g. spill kit training will be conducted when a new spill response team is appointed.

High awareness regarding the environment among employees will be sustained through the use of monthly environmental topics. These topics could summarise themes from the induction training, or it could be based on the normal seasonal trends such as dry periods and the conservation of water and prevention of fires.

8. ENVIRONMENTAL MONITORING

The observation and recording of environmental data are costly and time consuming exercises. The philosophy and reasoning behind an environmental monitoring system should thus always be sound and reasonable. The benefits of accurate environmental monitoring are not only required legally, but may also be to the benefit of the business, such as the protection of the environment, the improvement of risk management, the reduction of liabilities, the avoidance of adverse publicity and ultimately the improvement of business performance.

The current environmental legislation in South Africa requires that the mining sector should comply with the philosophy of integrated environmental management. Some of the general principles of this philosophy include an integration and participation with the Interested and Affected Parties (IAP's), which due to consideration of alternatives that includes the "no go option", and understanding that activities will not be approved if there is scientific uncertainty.

The abovementioned legislation is furthermore applied subject to a number of emerging Environmental Law Norms, including sustainable development, a human right to a decent environment, legal standing, inter-generational equity, the public trust doctrine, the precautionary principle, the preventive principle, the polluter pays principle, local level governance and the norm of common but differentiated responsibility.

Some of these norms have a profound influence on the way in which industries/mines need to perform their environmental management. In this regard, the precautionary principle, which states that "where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation." This norm introduces and elevates scientific quantification of impacts, and the associated risks to human health and the environment, to a status of representing a fundamental requirement in Environmental Management.

This implies that from a technical perspective that the full consequences of all environmental systems must be understood, to allow for accurate, quantitative impact and risk assessment, on which to base decisions related to the management of these systems. This simply means that the different biophysical components of the environment must be measured and monitored, to supply quantitative decision making information of high certainty, on which to base the management of the environment.

However, effective integrated environmental management does not only require a fundamental understanding of the environmental components and the activities and processes which could impact on the environment, but more importantly, the transient development of the impacts associated with these processes, need to be understood to such a degree that their future development and response to management, remedial and/or rehabilitation measures, may be predicted.

Furthermore, upon commissioning these management, remedial and/or rehabilitation measures, the efficiency of these measures to attain their objectives, must be measured through effective environmental monitoring.

Environmental Monitoring therefore forms the cornerstone of Integrated Environmental Management.

Environmental Management policies in South Africa advocate the Risk Based (Averse) Approach, subject to the implementation of the Best Practical Environmental Option (BPEO), using the management hierarchy of Source-Pathway-Receptor. The Source-Pathway-Receptor hierarchy requires an in-depth understanding of the origin of all pollutants, the pathway these pollutants could follow into the environment and ultimately the fate of these pollutants. The general Risk Profile relates to the protection of Human Health and the Environment. The BPEO is a minimum requirement in terms of South African Environmental Management Policy and forms the basis of all source control measures to be implemented.

On a practical level the compliance with all the above mentioned legislation, environmental law norms, guidelines and policies, requires environmental monitoring systems which must ensure the generation, interpretation and reporting of information, of high scientific integrity.

Formal technical guidelines for Environmental Monitoring are currently being developed locally. Until recently, the most comprehensive guideline related to water quality monitoring, was developed as part of the DWAF “Minimum Requirements for Water Monitoring at Waste Management Facilities”. However, as new legislation is promulgated, the development of several other monitoring guidelines will be initiated. In this regard the recently published DWAF Guideline – “Department of Water Affairs and Forestry, 2006. Best Practice Guideline G3. Water Monitoring Systems” is applicable.

Water quality guidelines, fitness for use standards and acceptable exposure levels for protection of Human Health and the Environment, are also being developed and refined on a continual basis, not only for water monitoring and management purposes but indeed also for aspects related to air quality and other environmental media and components.

Lastly, the commissioning of internationally certified Environmental Management Systems such as, ISO 14000, also influences the structure, commissioning and operation of Environmental Monitoring Systems. A certified ISO 14000 Management System requires a formal system to be in place for the monitoring and measurement of the actual performance against the environmental targets and objectives.

The results should be analysed to determine areas of success and identify any activities that require corrective or preventative actions and improvement. Amongst various other requirements, compliance with ISO 14000 is demonstrated when it can be proven that a corrective action system exists within a company’s environmental management system, to ensure a means for the raising of corrective action requests, and the consequent generation of action plans in order to remediate the wrongful action/situation.

Ultimately, it must be proven that the originator of the corrective action is informed when the wrongful action has been corrected, thereby closing the loop and ensuring continual improvement.

This proposed monitoring plan does not offer a procedural description of the corrective action request of this company, nor does it intend to describe how to implement such a system. However, it fully supports the principle of corrective action as described by the ISO 14001 standard of environmental management in that it highlights non-conformance in terms of certain compliance standards (e.g., the SANS 241: 2006 Drinking Water Standard).

It is the intention of this monitoring plan to advocate that where monitoring indicates a non-compliance quality, a corrective action to remediate the situation is generated. Data should be collected systematically, from appropriate sources at a frequency consistent with the environmental objectives and targets, taking the significance of the environmental aspects into consideration.

From a legal perspective, the formal aspects of monitoring are strictly controlled in terms of the current legislation. This not only includes the authorisation, permit, license and exemption conditions, but also certain statutory provisions. From the perspective of Sasol Mining these statutory provisions on their own, impose a duty to monitor all activities/impacts so as to quantify all environmental risks. The management of these risks depends largely on the availability of detailed technical environmental data, sound corporate governance as well as the relations with the relevant government authorities.

From a technical perspective, formal compliance should be seen as an absolute minimum requirement. Inadequate, periodic monitoring or even marginal deviance from monitoring procedure protocols produces unreliable data. Data of this nature has low integrity and strains the ability of an auditor/controlling authority to monitor material legal compliance. Failure to produce comprehensive and accurate data will not only result in failure to illustrate due diligence in terms of current environmental law, but also implies material non-compliance by default.

Material compliance essentially relates to measurable environmental components for which fixed compliance criteria and/or guidelines are available.

Two examples of such guidelines are the DWAF SA Water Quality Guidelines and the SANS 241:2006 Drinking Water Standard, the latter which was adopted for the purposes of this system to assess ground water quality compliance.

Specific material compliance requirements for Middelbult – Block 8 – Shondoni Environmental Monitoring will be contained in the formal authorizations to be issued by the relevant authorities, such as for example in the Integrated Water Use License, the Waste License, as well as the Atmospheric Emissions License.

8.1 TOPOGRAPHY MONITORING PLAN

A detailed and accurate topographical baseline has been established for the Middelbult – Block 8 – Shondoni mine lease area, which will allow the identification and quantification of any disturbances to the surface topography as a result of mining activities. No routine ongoing surface topographical surveying or mapping is required from an environmental perspective. If and when complaints relating to topographical disturbances are received from land owner, the relevant areas can be surveyed and compared to the pre-mining topographical base line.

8.2 SOILS MONITORING PLAN

The monitoring of the soil environment has not been legislated in terms of South African Law, but as an integral part of the “pathway” that any pollutant or contaminant is likely to follow, it is often an area where the contaminant is detected in the early stages of a problem, and often, due to its variability and ability to inhibit flow rates is part of the protection mechanism that can be used in mitigating impacts. The soils can also of course be part of the source of contamination.

Monitoring of the water in the environment are legislated and, although the nature of the material being sampled and analysed is different, the principles and methodology are similar. Formal technical guidelines for Environmental Monitoring are currently being developed locally.

Internationally there are norms that have been tabled for certain metal content and hydrocarbon limits to soils, and SA have adopted a similar approach to the understanding of soil quality, with research being undertaken on a need to know basis. This is often not satisfactory, and a retrospective philosophy that is often costly.

In addition, it is not only important to understand the presence of contamination in the vadose zone and soil profile, but it is necessary to understand the quality of a soil if it is to be used as a growing medium. The nutrient content of a soil is important to the success or failure of many a rehabilitation project. The results of soil analysis should be assessed to determine areas of success and identify any activities that require corrective or preventative action and improvement.

In this particular case (Soil and Land Capability), it is the intention of this monitoring plan to raise awareness regarding the possibility of problems within the soil profile (be it due to inputs of material from the mining activities that are a potential source of contamination, or the observation of nutrient levels), that can be mitigated.

By monitoring and observing the development (trends) of change within a soil profile, the corrective action to remedy the situation is highlighted early. Data should be collected systematically, from appropriate sources at a frequency consistent with the environmental objectives and targets, taking cognizance of the significance of the environmental aspects.

The environmental management plan specifies the baseline conditions that are to be achieved as part of the rehabilitation planning, and gives input into the procedures for the dealing of contaminated soils.

At the outset, and as part of the baseline information gathered, soil chemistry was measured for the pre-mining environment. This must be used as the basis for any change that becomes apparent during the activity.

The demarcating of specific points for monitoring are not recommended as composite samples were originally taken at the time of baseline investigation. Sampling of specific points during the life cycle of the mining venture will need to be decided on a need to understand basis, with the rehabilitated areas being sampled for nutrient levels when required, and any areas of concern regarding contamination will need to be determined and a specific grid decided for each individual situation.

As with any monitoring and data capture, protocols need to be developed for the specifics of the area and the material being sampled. In the case of soils, it is important that aspects such as sampling technique, sampling equipment, sampling frequency, sample preservation, analysing technique, and variables to be analysed for, should be formalized and documented.

The frequency of monitoring/sampling should at all times be a combined function of the sampling objectives and the expected variability in the parameter(s) to be monitored. In the case of soils the changes and variation in quality are generally a function of input or removal due to a known action or process and the measuring of change will be determined on a need to know basis. This is specifically true for the rehabilitation of an area, or when a spill has occurred. Thus, the frequency of sampling will be determined by the circumstance.

The success of any monitoring program depends inter alia on the selection of appropriate sampling techniques and equipment to satisfy all monitoring objectives. Broadly speaking these objectives should support regulatory requirements, certain operational decision making requirements and corrective action evaluation. Incorrect or poorly selected sampling techniques will render all of the preceding effort (such as evaluation of site conditions, optimization of sampling frequency and selection of variables to be analysed for) futile.

Great care should at all times be taken in the field to prevent mishaps or contamination. In the case of soil monitoring, the equipment used will depend on the depth at which the sample is to be taken and the quantity of material that is needed. If only the nutrient content of a soil is needed as part of the rehabilitation planning, then relatively small quantities of soil are needed, while the understanding of a soils physical attributes and its engineering properties or possible containment of a contaminant will often require that a much bigger sample is taken a varying depths through the profile.

Aspects such as timing, techniques, and the capture of the information will vary with the different reasons for undertaking the sampling.

8.3 GROUND WATER MONITORING PLAN

The ground water monitoring plan for Sasol Middelbult – Block 8 - Shondoni will concentrate on two ground water related impacts, namely:

- The potential impact of bord and pillar mining activities on ground water yield and ground water quality of external users in the shallow weathered aquifers.
- The potential impact of increased extraction mining activities on ground water yield and ground water quality of external users in the shallow weathered aquifers

A ground water monitoring system is in place for the greater Sasol Mining Division – the so-called REGM monitoring system. In addition to that, the following monitoring boreholes were drilled during the 2002 Block 8 investigation.

JMA proposes that these localities are added to the REGM monitoring system. This system recommends a 6-monthly monitoring for borehole yield and qualities, and is reported on a bi-annual basis to the Department of Water Affairs:

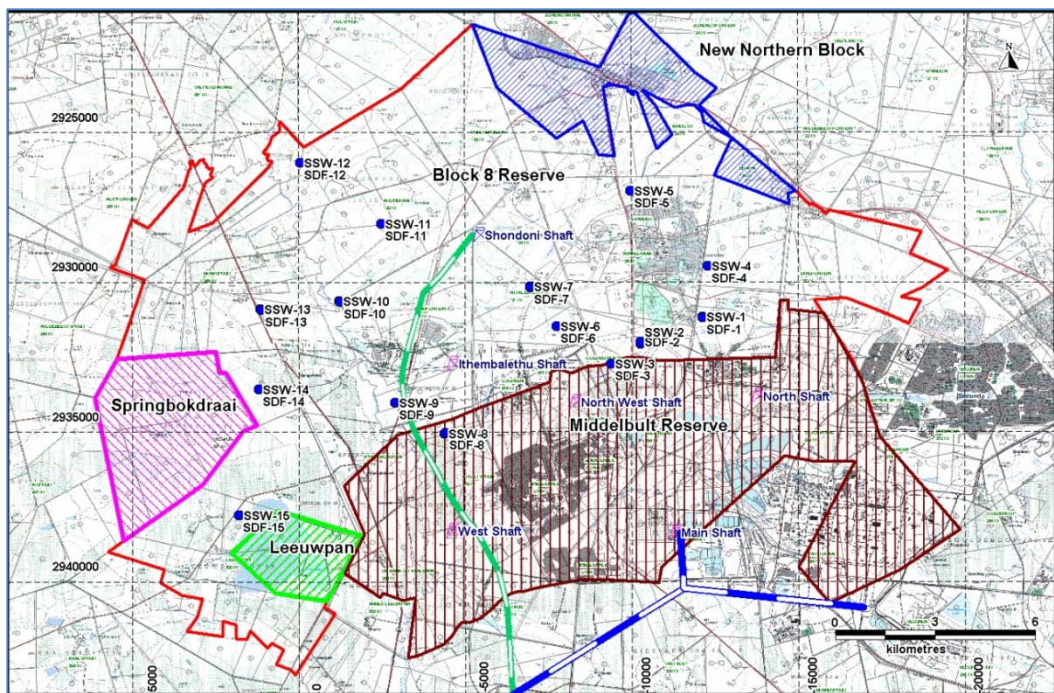


Figure 8.3(a): Proposed Ground Water Monitoring Boreholes

| Number: | Latitude [°] | Longitude [°] |
|----------------|---------------------|----------------------|
| SDF-1 | 26.49249 | 29.12165 |
| SDF-2 | 26.49995 | 29.10294 |
| SDF-3 | 26.50655 | 29.09408 |
| SDF-4 | 26.4771 | 29.12309 |
| SDF-5 | 26.45441 | 29.09984 |
| SDF-6 | 26.49529 | 29.07769 |
| SDF-7 | 26.48346 | 29.06966 |
| SDF-8 | 26.5275 | 29.04399 |
| SDF-9 | 26.51831 | 29.02895 |
| SDF-10 | 26.48788 | 29.01239 |
| SDF-11 | 26.46438 | 29.02486 |
| SDF-12 | 26.44611 | 29.00048 |
| SDF-13 | 26.4903 | 28.98851 |
| SDF-14 | 26.5143 | 28.98789 |
| SDF-15 | 26.55214 | 28.98191 |

| Number: | Latitude [°] | Longitude [°] |
|----------------|---------------------|----------------------|
| SSW-1 | 26.49244 | 29.12163 |
| SSW-2 | 26.50047 | 29.10296 |
| SSW-3 | 26.50667 | 29.09406 |
| SSW-4 | 26.477 | 29.12309 |
| SSW-5 | 26.45445 | 29.09981 |
| SSW-6 | 26.49527 | 29.07764 |
| SSW-7 | 26.48336 | 29.06965 |
| SSW-8 | 26.52751 | 29.04393 |
| SSW-9 | 26.51825 | 29.02896 |
| SSW-10 | 26.48775 | 29.01225 |
| SSW-11 | 26.46433 | 29.02488 |
| SSW-12 | 26.44606 | 29.00049 |
| SSW-13 | 26.49019 | 28.98846 |
| SSW-14 | 26.5143 | 28.98783 |
| SSW-15 | 26.55214 | 28.98196 |

When high-extraction activities commence over the total mine lease area, the monitoring system must be upgraded on an annual basis:

- All external user's boreholes (yielding more than 0.2 l/s), within a radius of 500 m of proposed increased extraction activities must be monitored for ground water level response, on a quarterly basis.
- Additional monitoring boreholes will be drilled after consultation with an independent Geohydrologist.

8.4 SURFACE WATER MONITORING PLAN

The monitoring programme developed for Shondoni is detailed below. Sampling points will tie in with the baseline water quality sampling points, which have been planned so as to be upstream and downstream of the proposed surface infrastructure.

It is proposed to monitor water quality upstream and downstream of the mining area, as well as downstream of the coal handling area. Being on the watershed, upstream sampling will not always be practical, but any impacts on the water system will be detected downstream.

The objective of the surface water monitoring system is to ensure that the water management systems perform according to specifications, to act as a pollution early warning system, to check compliance with license requirements and for reporting purposes.

The objectives of these systems will be achieved if there is no impact (attributable to the mine) on the in-stream and downstream fitness for use criteria.

The following sampling is proposed for surface water:

Table 8.4(a): Surface Water Quality Variables to be Monitored

| Item | Variables |
|----------------------------|---|
| Regular (monthly) sampling | It is proposed to regularly sample for those constituents expected to be elevated in the mine water i.e. Electrical Conductivity, pH, TDS, SS, Cl, SO ₄ , Na, F, Fe, Al, Mn, Zn, Total Alkalinity, Ca, Mg, K, Total Hardness. |
| Every 6 months | Analyses to 95% charge balance will be undertaken at 6 monthly intervals, including all metals. |

The samples will be grab samples taken from non-stagnant areas of the streams as far as is practical, with the following samples taken:

- Filtered and unfiltered samples (where colloidal matter is found to significantly influence metal concentrations).
- Acid preservation of samples for the metals analyses.

All samples will be analysed by an independent accredited laboratory.

Sasol Mining has a well developed data management system for water quality samples using database systems and GIS. These systems will be utilised for the Shondoni water quality data.

Sasol Mining already reports on water qualities for their existing mines. Data for this new area will continue to be presented in graphic and tabular form indicating maximum, minimum and average values with information being submitted annually to DWAF or more frequently if required. As is currently the practice, these submissions are included in the annual EMA.

8.5 PLANT LIFE MONITORING PLAN

The control of alien plants is required according to the Conservation of Agricultural Resources (Act No. 43 of 1983) as amended in 2001, as follows:

Declared Weeds and Invaders in South Africa are categorised according to one of the following categories:

- *Category 1 plants: are prohibited and must be controlled.*
- *Category 2 plants: (commercially used plants) may be grown in demarcated areas providing that there is a permit and that steps are taken to prevent their spread.*
- *Category 3 plants: (ornamentally used plants) may no longer be planted; existing plants may remain, as long as all reasonable steps are taken to prevent the spreading thereof, except within the floodline of watercourses and wetlands.*

The identification of all individuals of listed alien plants is required. An annual or biennial census of the density and distribution of alien plants within the mine controlled above-ground areas is required. A botanist must search the mine property for alien plants, obtain a latitude/longitude position for each plant and identify the species.

The protection of endangered ecosystems is required according to the National Environmental Management: Biodiversity Act (Act No 10 of 2004).

In terms of the Biodiversity Act, the developer has a responsibility for:

- *The conservation of endangered ecosystems and restriction of activities according to the categorisation of the area (not just by listed activity as specified in the EIA regulations).*
- *Promote the application of appropriate environmental management tools in order to ensure integrated environmental management of activities thereby ensuring that all development within the area are in line with ecological sustainable development and protection of biodiversity.*
- *Limit further loss of biodiversity and conserve endangered ecosystems.*

As per point three (above), it is important to ensure that no unnecessary impacts on natural systems are permitted on site since all remaining vegetation on site falls within listed ecosystems (Draft National List of Threatened Ecosystems (GN1477 of 2009), published under the National Environmental Management: Biodiversity Act (Act No. 10, 2004)).

The boundaries of sensitive areas must be demarcated (can be in GIS system). A regular census is required to ensure that transformation or degradation of these areas does not take place. This can take the form of a visual inspection of natural areas at regular intervals to ensure that boundaries are not transgressed.

More detailed assessments can take place at longer intervals (~5years), where floristic data is collected at sites included in the original vegetation survey (EcoInfo 2004 - GPS locality data and original floristic data will have to be procured) and an assessment is made of species compositional change. This will provide an indication of directional change in species composition that would indicate degradation as opposed to cyclical changes that occur in natural systems.

8.6 ANIMAL LIFE MONITORING PLAN

Water quality monitoring has been recommended as part of the aquatics study and this monitoring program will also give an indication of the habitat quality of aquatic environments for the fauna utilizing them. In addition, it is suggested that a qualified ornithologist be consulted to undertake monitoring of the Greater and Lesser Flamingo populations within the Leeuwpans Reserve.

It is expected that this monitoring could take the form of seasonal or biannual population counts throughout the lifetime of the mining project to determine whether the project is having any influence on the number of birds utilizing the pan. Although this area is not expected to be directly affected by the mining activity, changes in habitat quality could occur and may negatively impact the flamingo populations.

8.7 AQUATIC BIO-MONITORING PLAN

It is recommended that monitoring be undertaken during all phases of mining as described in the sections below. Data collected during this study should serve as a baseline against which future data can be measured. Therefore, monitoring points should coincide as closely as possible to the sites sampled during the Baseline Surveys – see Tables in Chapter 5 of VOLUME I. Any significant difference from the baseline levels should be red-flagged, investigated and follow-up action taken. Such follow-up action should be recorded in a register so that repeated recordings of similar problems are treated as non-compliances or incidents that trigger more effective interventions. It is recommended that monitoring endpoints (i.e. Target Ecological Management Category) be set as follows:

- Bankspruit: Category B (Largely Natural)
- Kaalspruit: Category C (Moderately Modified)
- Trichardtspruit: Category C (Moderately Modified)
- Waterval River: Category D (Largely Modified)
- Grootspuit: Category E (Seriously Modified)
- Evanderspruit: Category E (Seriously Modified)
- Leeupan: Category E (Seriously Modified)
- Dwars-in-die-Wegspruit: Category C (Moderately Modified)

Water Quality

It is recommended that sampling points be analysed on a monthly basis for basic anions and cations (including sulphates, calcium and sodium) as well as Total Dissolved Solids (i.e. salts), electrical conductivity and pH. Levels should not be significantly higher than those measured during the baseline report and pH should not drop below 6.5. Target water quality levels should be set in conjunction with the Department of Water Affairs. It is recommended that the Water Quality Guidelines for ecosystems be applied as far as possible.

In addition, it is recommended that diatoms be analysed as a more long-term and reliable means of measuring water quality. Diatoms provide a rapid response to specific physico-chemical conditions in aquatic ecosystems and are often the first indication of change. The presence or absence of indicator taxa can be used to detect specific changes in environmental conditions such as eutrophication, organic enrichment, salinisation and changes in pH.

Wetland habitat integrity

An annual assessment of wetlands, preferably conducted in summer should assess the PES (Present Ecological State) of affected wetlands. It is important that photographs be taken as a record of changes in, for example, vegetation and channel morphology over time.

An annual wetland assessment report should include recommendations for rehabilitation, where necessary. These recommendations should be immediately addressed and recorded in a register, together with a record of the corrective action taken. PES should not fall more than one category below the category attained in the baseline survey.

Aquatic Macroinvertebrates and fish

It is recommended that sampling points be sampled and analysed on a biennial basis for aquatic macroinvertebrates and fish. Sampling should be conducted during spring and autumn (October and April/May). The SASS5 results should be analysed according to guidelines given in Dallas (2008) for the sake of continuity. Fish should be sampled in all channelled systems, including sites S7 and S8 along the Bankspruit (not sampled during the baseline survey.).

The PES category for both fish and macroinvertebrates should not drop by more than one category than those given in the baseline study. Loss of any fish species or any sensitive invertebrate taxon (scoring 8 or more) should trigger immediate corrective action. It is recommended that a system be implemented whereby all specialist advice can be incorporated into action plans.

Avifauna

An annual survey of avifauna, in particular flamingos, by a qualified specialist, is recommended for Leeuwpans. Recommendations should automatically trigger management interventions.

Rehabilitation

A rehabilitation plan should be compiled by a wetland specialist to address impacts to wetlands during all phases of the development. The plan should include:

- An alien vegetation plan and programme for regular alien inspections and clearing.
- A monitoring programme for regular inspections of rehabilitation success (e.g. erosion, revegetation success, effectiveness of interventions, etc.)

In terms of monitoring wetlands, it is recommended that fixed point photography be utilised to record the state of the wetlands and rivers at all the biomonitoring sample points, as well as at every floodplain crossing along the conveyor route.

These photographs should be used to identify problems associated with erosion, increased sedimentation and colonisation by reeds and changes in habitat structure. It is recommended that photographs are taken at least biennially, before and after the onset of the main rainfall season.

8.8 AIR QUALITY MONITORING PLAN

In view of the fact that the only air quality impacts will relate to construction and de-construction activities during the construction and decommissioning phases, ongoing air quality monitoring is not deemed necessary for Middelbult – Block 8 – Shondoni.

8.9 NOISE MONITORING PLAN

Construction Phase

Noise during the construction phase is not expected to be audible at any of the noise-sensitive locations in the study area. No noise monitoring is required.

Operational Phase

- A noise survey should be carried out immediately after commissioning of the surface ventilation fans and the conveyor.
- Follow up with annual surveys at the same locations.
- Measure noise levels at each of the reference points shown on the map in Figure 8.9(a).
- Measure the A-weighted equivalent continuous noise level in a sequence of 10-minute intervals covering a period of preferably 24 hours, but at least the night-time period from 22:00 to 06:00. If possible, arrange for the relevant noise source under investigation (ventilation fans or conveyor) to be stopped during night-time for a period of 30 minutes, after which it is started up again.

- Process the data and determine the increase in ambient level caused by fan or conveyor noise.
- Assess the noise impact of the mine and present the findings in a report. If applicable, make recommendations for steps required to mitigate excessive noise.
- Equipment, calibration and measurement procedures must comply with the requirements laid down in SANS 10103.

Decommissioning Phase

Noise during the commissioning phase is not expected to be audible at any of the noise-sensitive locations in the study area. No noise monitoring is required.

Post Closure Phase

Noise during the post closure phase is not expected to be audible at any of the noise-sensitive locations in the study area. No noise monitoring is required.

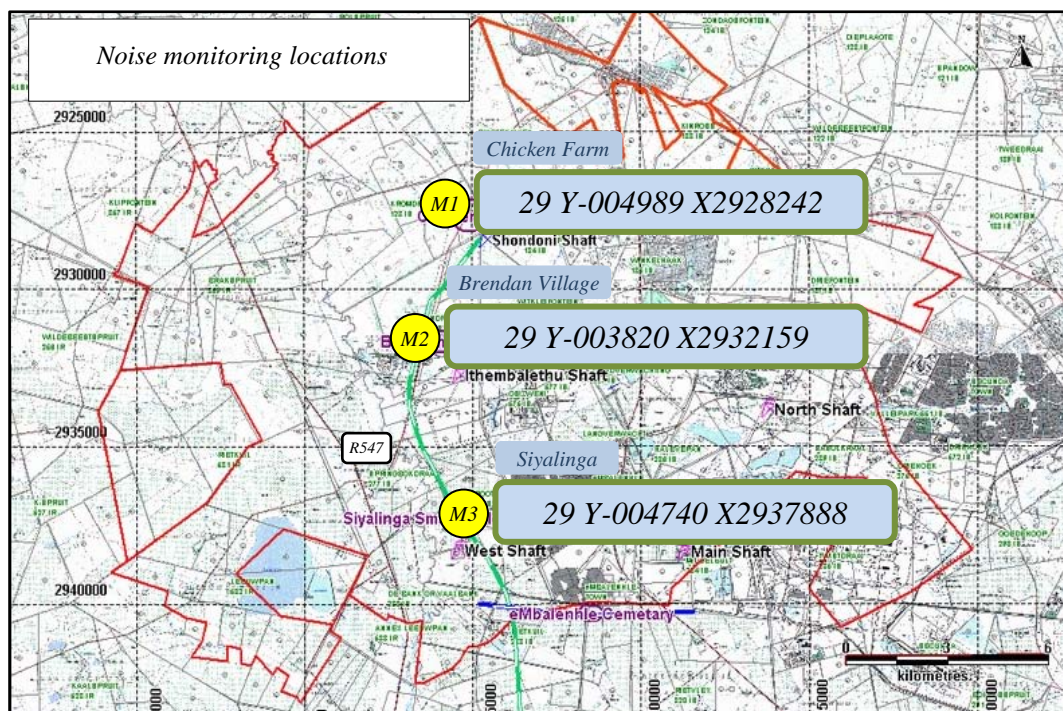


Figure 8.9(a): Locations where Noise should be Monitored

9. ENVIRONMENTAL IMPACT STATEMENT

A comprehensive Environmental Impact Assessment was conducted for various relevant activities at Sasol Middelbult Shondoni. The activities assessed included the following:

- NEMA Listed Activities as listed in GNR 386 and GNR 387.
- NWA Water Uses listed in Section 21 of the NWA.
- NWA Exemptions from GNR 704.
- NEMWA Waste Activities listed in GNR 718.
- MPRDA Environmental Impacts listed for Shondoni shaft and all current operational and closed shaft complexes.
- MPRDA Environmental Impacts listed for Middelbult Shondoni underground mining activities.
- MPRDA Environmental Impacts listed for Middelbult Shondoni conveyor belt commissioning and operation.

The EIA conducted is of high integrity with a very high degree of confidence, mainly due to:

- Comprehensive base line studies were conducted by a team of specialists for the following aspects:
 - Topography (described by various specialists in other specialist reports)
 - Soils
 - Land Capability and Land Use (part of soils report)
 - Geology
 - Ground Water
 - Surface Water
 - Plant Life
 - Animal Life
 - Wetlands
 - Aquatic Ecosystems
 - Air Quality (basic reference to impact due to construction and operational activities)
 - Noise
 - Visual Aspects
 - Heritage assessment
 - Socio Economics (references made to the comprehensive Social and Labour Plan, compiled by Sasol Mining).
- The base line studies provided detailed, site specific quantitative descriptions of the current and future situation at Sasol Middelbult Shondoni.
- Detailed project and process descriptions for all existing activities, as well as for proposed new activities Sasol Middelbult Shondoni, were available that could be used to identify impacts.
- The same specialists that conducted the base line studies, performed detailed empirical, analytical, numerical and stochastic modelling to support the impact assessments for various critical environmental components.
- A formal numerical impact significance assessment matrix, based on the Sasol Mining Protocol was then used to assess the impacts associated with all the identified activities, for all four life cycle phases of the various activities.

- The numerical impact significance assessment matrix considered the following criteria:
 - Quantity of the impact
 - Toxicity of the impact
 - Extent of the impact
 - Duration of the impact
 - Environmental Status of the impact
 - Legislation required for the impact
 - Impact on Interested and Affected Parties
 -
- Based on the numerical rating obtained, impact significance was determined to fall in one of the following four possible outcomes:

| EXPLANATION FOR IMPACT SIGNIFICANCE RATING | | |
|---|---|---|
| Criteria | Definition | Points obtained from Sasol Mining rating system |
| Impact Magnitude or Significance | | |
| High | Of the highest order possible within the bounds of impacts that could occur. In the case of adverse impacts, there is no possible mitigation that could counteract the impact, or mitigation is difficult, expensive, time-consuming or a combination of these. Social, cultural and economic activities of communities are disrupted to such an extent that these come to a halt. In the case of beneficial impacts, the impact is of a substantial order within the bounds of impacts that could occur. | 17-22 |
| Medium | Impact is real, but not substantial in relation to other impacts that might take effect within the bounds of those that could occur. In the case of adverse impacts, mitigation is both feasible and fairly easily possible. Social, cultural and economic activities of communities are changed, but can be continued (albeit in a different form). Modification of the project design or alternative action may be required. In the case of beneficial impacts, other means of achieving this benefit are about equal in time, cost and effort. | 10-16 |
| Low | Impact is of a low order and therefore likely to have little real effect. In the case of adverse impacts, mitigation is either easily achieved or little will be required, or both. Social, cultural and economic activities of communities can continue unchanged. In the case of beneficial impacts, alternative means of achieving this benefit are likely to be easier, cheaper, more effective and less time-consuming. | 5-9 |
| No Impact | Zero impact. | <5 |

9.1 SUMMARY OF KEY EIA FINDINGS

The key findings of the Impact Assessment will be discussed with reference to the Impact Significance Categories listed above, for each of the project life cycle phases.

9.1.1 Construction Phase

This phase at Sasol Middelbult Shondoni will consist of the commissioning of the following infrastructure:

- Construction of the Shaft Complex at Shondoni.
- Construction of associated infrastructure at the Shondoni Shaft, namely:
 - The Coal throw out stockpile.
 - Service Water Dams and Storm Water Pollution Dam.
 - Diesel Fuel Storage Tanks.
 - Construction of an Access Road to the Shaft.
- Construction of a double circuit 132 kV Overhead Power line from Eskom.
- Construction of an overland conveyor system from the Shaft to the SSF facility.

For the 11 environmental components assessed for the construction phase, the highest negative pre-management impact significance was assessed as **medium**, all of which could be managed to **low**.

Components, for which **medium** negative impact significance was assessed, included:

- Soils
- Land Capability and Land Use
- Surface Water
- Plant Life
- Animal Life
- Wetlands
- Aquatic Ecosystems

The most critical impacts that needs to be managed, relate to

- the disturbance of soils (at the shaft complex)
- the impact on aquatic ecosystems at conveyor belt river crossings

The construction phase assessment for socio-economic impacts, indicated a **medium positive impact**. This positive impact relates to capital expenditure which will flow into the private sector through appointment of external contractors and suppliers during the construction of the various activities.

9.1.2 Operational Phase

The impact assessment for the operational phase was conducted with the assumption that the measures listed would be implemented during the construction phase and managed and maintained during the operational phase.

Impact significance ratings for the operational phase varied between **low** and **high**. Whereas for most of the environmental components impacts can be managed down to **low** levels of significance, the potential for impacts to remain at a **medium** significance level, if dedicated management is not performed, remained for the following environmental components:

- Topography
- Soils
- Ground Water
- Surface water
- Plant Life

The **medium** significance rating in all instances relate primarily to the **long duration** of these impacts, (full operational phase) and not necessarily to the **intensity** of the impacts. The most critical impacts that need to be managed are:

- Surface subsidence due to increased extraction activities
- The pollution of sub-soils from the coal stockpile and Pollution Control Dam
- Reduction in ground water base flow due to increased extraction activities
- Deterioration in ground water qualities stored in underground compartments
- Surface water management of underground water, in the event that insufficient storage space is available underground.
- Invasion of alien plant species

All the above components need to receive dedicated attention during the operational phase, in order to manage them down to a **low** significance.

9.1.3 Decommissioning and Closure Phase

The decommissioning and closure phase essentially represents a construction phase in reverse. The cause of impacts, as well as their intensity and duration are very similar to that observed for the construction phase.

Impacts of **medium** significance, but all of which can be managed to **low** significance, have been assessed for the following environmental components:

- Topography
- Surface Water
- Plant Life
- Aquatic Ecosystems

The most critical impacts that need to be managed are:

- Residual surface subsidence due to increased extraction activities (very low likelihood)
- Surface water management of underground water, in the event that insufficient storage space is available underground.
- Invasion of alien plant species

Similar to the construction phase, the decommissioning and closure phase assessment for socio-economic impacts, indicated a **medium positive impact**. This positive impact relates to capital expenditure which will flow into the private sector through appointment of external contractors and suppliers during the decommissioning (de-construction) of the various activities.

9.1.4 Post Closure Phase

Impacts that persist post closure are referred to as residual impacts and will of course only occur if such impacts had indeed manifested during any of the preceding phases.

Impacts of **medium** significance, but all of which can be managed to **low** significance have been assessed for the following environmental components:

- Topography
- Ground water
- Surface Water
- Plant Life
- Aquatic Ecosystems

The most critical impacts that need to be managed are:

- Residual surface subsidence due to increased extraction activities (very low likelihood)
- The storage and treatment of polluted underground water.
- Preventing/Managing inter-mine flow.
- Surface water management of underground water, in the event that insufficient storage space is available underground.
- Invasion of alien plant species at closed areas (shaft and conveyor).

9.2

COMPARATIVE ASSESSMENT (POSITIVES/NEGATIVES)

This EIA/EMP was conducted to obtain authorization for essentially the expansion of the existing Middelbult Mine into the Block 8, Springbokdraai, Leeuwpan and Block 8 Northern Reserves. This expansion would extend the life of mine of Middelbult Colliery up till 2041, at an annual production rate of between 8.5 and 9.5 million tons. It is therefore quite obvious that this expansion would optimize the reserve utilization for Middelbult Colliery.

The coal produced by Middelbult – Shondoni contributes a significant portion of the critically required feed into the Sasol Synfuels Plant at Secunda. The sustained maintenance of the coal mining production rates to source the SSF Plant is of the utmost importance.

Sasol Synfuels in Secunda arguably represents one of the single most strategic industries in South Africa. Without quoting figures, it is obvious that its contribution to the supply of the national liquid petroleum, industrial chemical and agricultural chemical markets, to name but a few of the more obvious, is of national strategic significance.

The exiting Middelbult Mine has contributed to the South African GDP since the 1990's. The expansion of the Middelbult mining operations into the Block 8, Springbokdraai, Leeuwpan and Block 8 Northern Reserves will contribute significantly to the GDP. Estimates in 2003, puts a shaft development cost, similar to what is envisaged at Shondoni, at an estimated R 900 million. The annual expense budget estimated in 2003, puts annual expenditure during full production at some R 700 million per year.

Although none of the Middelbult Shondoni coal will be sold directly into the foreign markets, the indirect contribution to the South African Balance Sheet is obvious due to the significant contribution to the local economy via the Sasol Synfuels contribution to fuel and chemicals supply.

Middelbult - Block 8 - Shondoni), as part of the overall mining and industrial industry in the Govan Mbeki Municipal Area, contributes quite significantly to the socio-economic wellbeing of the region. Studies conducted in the area clearly show the dominant contribution of the mining and associated industrial sectors to the socio-economic fabric of the area. The influence of the mining and industrial sectors clearly manifest in aspects related to age distribution, employment, income and the provision of services and housing.

The number of people employed in the Govan Mbeki Municipality amounts to some 67 172 people (or 32 % of the total population). Not reflected in these figures is the amount of informal employment within the district. In a study conducted by DPR (2000), the number of people involved in the informal employment sector in the Highveld Ridge District was $\pm 7\ 000$.

Information available for the various sectors of the economy and the number of people employed in these sectors, indicate that mining accounts for the highest number of employees at 9,54% (20 018 people) followed by manufacturing at 4,35% (9 130 people).

However, these figures only reflect the direct employment in these sectors and do not account for the peripheral employment created around these sectors.

The Middelbult - Block 8 - Shondoni workforce of 1600 employees represents some 8 % of the total mining sector workforce in the area.

Against all these positive impacts associated with the Middelbult expansion, weighs the negatives of the expected environmental impacts. The highly quantitative impact assessment conducted, however, indicated all expected environmental impacts to be manageable to acceptable levels. The methodologies and technologies required to manage these impacts, all represent proven existing best practice interventions, as have been employed by Sasol Mining for a number of years now.

The extent to which Sasol Mining has incorporated environmental management measures into their planning and design phase for this project, bears clear testimony to their commitment towards protecting the environment through sustainable mining programs in a responsible manner.

The conclusion is therefore reached that the positive impacts associated with this proposed project, exceed the negative impacts by quite a large margin.

10. PROFESSIONAL OPINION FOR AUTHORIZATION

10.1 RECOMMENDATION FOR APPROVAL

Based on the outcome of the high integrity impact assessment there appears no scientific evidence that environmental impacts associated with the proposed activities of Sasol Mining at Middelbult – Block 8 – Shondoni will result in impacts of unacceptable magnitude and risk.

All impacts identified for all the life cycle phases of the project, can indeed be fully managed to acceptable levels using existing best practice methodologies. In this regard Sasol Mining, through their innovative design of mining infrastructure, as well as underground mining plans and water management plans, has demonstrated their full capacity and commitment towards managing their coal mining related impacts to acceptable levels.

It is therefore recommended by the EAP that approval be granted to Sasol Mining (Middelbult Colliery), to proceed with the activities as applied for, subject of course to conditions as could be specified by the relevant regulatory authority(ies) within their respective mandates of regulation.

10.2 CONDITIONS FOR APPROVAL

Conditions for approval remain the prerogative and responsibility of the relevant regulatory authority. However, the Recommendation for Approval of the EAP is made subject to the following conditions:

- That the Environmental Management Plan as detailed in the Management Measure Tables, be implemented as proposed, or alternatively with motivated alterations.
- That ongoing monitoring and auditing, also as proposed in the EMP (Chapter 7 and Chapter 8) be conducted during the life span of the project.
- That environmental management measures be adapted, or continued, based on the outcome of the monitoring and auditing programmes.

Respectfully submitted,

Original Signed By

Jasper L Müller (Pr.Sci.Nat.)

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MIDDELBULT - BLOCK 8 - SHONDONI**

EIAR

**DRAFT
ENVIRONMENTAL
MANAGEMENT
PLAN**

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SASOL MINING (Pty) Ltd
Middelbult – Block 8 – Shondoni

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