

2.6.7.1 Surface water quality monitoring

Surface water will be sampled upstream and downstream of the proposed Navigation West Section mining area in the unnamed tributaries of the Grootspuit, and downstream of the Navigation West Section; North Block in the tributary of the Brugspruit (when it is flowing). Refer to Attachment 3.

Water samples will also be taken in the dirty / affected area from the Pollution Control Pond, and Evaporation Pond (refer to Attachment 1 (Navigation West Section Mine Plan) for the location of the location of the Pollution Control Pond and the Evaporation Pond). Samples will be taken at least on a monthly basis. Samples will be analysed for chemical and physical constituents normally associated with coal mining. These constituents are listed in Table 1:

Table 1: Water quality monitoring constituents for the proposed Navigation West Section

Monitoring Interval	Constituent / Variable
Monthly	EC, pH, TDS, total hardness, total alkalinity, calcium, magnesium, sodium, potassium, chloride, sulphate, fluoride, nitrate, iron, manganese, aluminium and turbidity

Note: Once trends are established, some of these constituents may be sampled less frequently, while others found to be of concern may be added in consultation with the relevant role players, including DWAF: Regional Office.

Rainfall measurement will also be conducted at the site on a daily basis. Regression and trend analyses will be performed on the data to monitor variances and to define assignable causes. The ranges in the acceptance criteria (target water quality standards) will be superimposed to display red flagged situations. Reporting on the surface water quality will be done internally on a monthly basis. Reporting on surface water quality to the DME and the DWAF will be undertaken annually.

2.6.7.2 Surface water quantity monitoring

The impoundments (specifically the Pollution Control Pond, but also the Evaporation Pond and in-pit impoundment areas) will be monitored to ensure that the water levels do not exceed the expected maximum operational level. These levels will be marked to serve as a control measure to effortlessly see if the permissible level is exceeded. The levels will be checked weekly and again after rainfall events.

The rate of influx of liberated groundwater into the open pit will also be monitored as the Pollution Control Pond has only been sized to capture the dirty water from the Tip and workshop area. Continuous monitoring will provide data to establish if additional capacity will be required.

The water balance will be updated to reflect the actual conditions. All sources will be verified on a monthly basis. Reporting on the water balance will be done internally on a monthly basis. Reporting on the water balance to the DME and the DWAF will be undertaken annually.

2.6.7.3 Surface water infrastructure

The storm water drains and berms will be inspected as part of a monthly routine to ascertain that it is still fit for its intended purpose. The flow paths will be kept clean from suspended sediment and excessive growth that could obstruct flow. The embankments should be free of severe erosion marks. The berms and drains will be checked for low points that could cause damming and topping / spilling. Before the rainy season all embankments and drains will be cleaned. The integrity of the impoundments and drains will ensure that surface water pollution is prevented.

Reporting on the status of the surface water management infrastructure will be done internally on a monthly basis. Reporting on the surface water management infrastructure to the DME and the DWAF will be undertaken annually. In addition, a report regarding the status of the surface water management infrastructure will be submitted to the DME and the DWAF following a storm event greater than a 1:50 year event.

2.6.7.4 Surface rehabilitation insofar it affects catchment yield

The ultimate objective will also be to restore the catchment yield soon after decommissioning and thus will commence during the Operational Phase. Monitoring of the rehabilitation programme will focus on aspects such as:

- Reinstating clean areas as soon as possible or it is practical.
- Reinstating the original topography (except in the pre-mining pan area in the North Block) to enhance free sheet flow drainage.
- Encouraging agricultural activities to continue, which will also create some erosion control.
- Consolidation settlement could cause ponding of water on surface or drainage patterns to be interfered with.
- Differential settlement at the edges of the pit could cause surface crack forming that could cause interception of surface water.

All of the above monitoring aspects will be performed on a continuous basis during all lifecycle phases of the mine, and a report will be generated, by a suitably qualified person, to present the monitoring results as well as an interpretation of the data, and the recommended actions to be taken (if any). The mine will demonstrate that all surface water aspects are dealt with in an environmental friendly and responsible manner. A suitably qualified person will be appointed to monitor the construction of all surface water infrastructures to meet civil engineering industry standards.

2.6.8 Groundwater

2.6.8.1 Monitoring plan / protocol

Groundwater samples will be taken in purposefully placed boreholes (which were determined by a suitably qualified person) around the Navigation West Section mining area, including down gradient of the Pollution Control Pond, on a quarterly basis. Samples will also be taken in the monitoring boreholes SCGW01 to SCGW06 on a quarterly basis. Water levels of these boreholes will also be measured on a quarterly basis when the sampling is done. Samples will be analysed for chemical and physical constituents normally associated with coal mining. These constituents are listed in **Table 2**.

Table 2: Groundwater constituents for routine analysis

Monitoring	Variable
Monthly*	EC, pH, TDS, total hardness, total alkalinity, calcium, magnesium, sodium, potassium, chloride, sulphate, fluoride, nitrate, iron, manganese, aluminium and turbidity

*Note: * = Once trends are established, some of these constituents may be sampled less frequent, while others found to be problematic may be added as determined on consultation with the relevant role players, such as the DWAF: Regional Office.*

The additional groundwater monitoring localities will be included in the larger Landau Colliery's monitoring program. The position of these localities is indicated in Figure 2.3.1-1 and described in Table 2.3.1-1 of Appendix B of the Navigation West Section Environmental Impact Assessment. Refer to Attachment 4.

The water levels at these borehole localities will be measured on a monthly basis for inclusion into the groundwater database with the objective of groundwater model calibration at a later stage.

This preliminary monitoring schedule will be re-assessed by a suitably qualified geohydrologist during the Operational Phase in terms of stability of water levels and quality. Changing of the sampling program will be done in consultation with the relevant Departments. **Reporting** on groundwater quality conditions will be included in an annual report.

The quarterly report will be an update of the database with time-series graphs, statistical analysis (average, maximum, minimum, 5 -, 50 - and 95 percentile values as well as linear performance). Data will also be presented in a map format to present a clear picture of the water quality situation. Laboratory results will be analysed against the target water quality guidelines for domestic use, the aquatic environment, livestock watering and irrigation (according to the South African Water Quality Guidelines, 1996: DWAF). The strictest value between the target water quality objectives or objectives set through a reserve determination will be used.

In terms of flow, all water uses and controlled discharges will be measured on an ongoing basis. The flow measurements will at least include:

- Make-up water.

- Volumes of groundwater pumped from the in-pit containment areas and, where possible, volumes of seepage into the pit.
- Volumes of contaminated water used for dust suppression.

An annual detailed evaluation report on the surface and groundwater quality will be prepared that will assess and describe the water quality situation in detail to investigate trends and non-compliance.

2.6.8.2 Data management

Monitoring results will be entered into an electronic database as soon as results are available, and at no less than one monthly intervals, allowing:

- Data presentation in tabular format,
- Time-series graphs with comparison abilities,
- Statistical analysis (minimum, maximum, average, percentile values) in tabular format,
- Graphical presentation of statistics,
- Linear trend determination,
- Performance analysis in tabular format,
- Presentation of data, statistics and performance on diagrams and maps, and
- Comparison and compliance to South African Water Quality Guidelines and any other given objectives.

The same monitoring points will be used as far as possible from the onset of the Construction Phase through the operational and Decommissioning Phases to ensure the development of a long data record and enable trend analysis and recognition of progressive impacts with time.

2.6.9 Air Quality

An effective and accurate air quality monitoring programme will be developed by a suitably qualified person, prior to the commencement of the Construction Phase of Navigation West Section, which will include data collection, modelling and emission measurements, and the results of which will be measured against applicable air quality criteria. Landau Colliery's dust monitoring programme will be extended to include the dust monitoring at Navigation West Section. A report will be generated by a suitably qualified person on a monthly basis to present the air quality monitoring data and any identified trends, as well as recommended actions to be taken (if any). An annual report of the monthly monitoring data and interpretation thereof will be generated for submission to the DME.

2.6.10 Noise & Vibration

Noise will be generated during blasting. Landau Colliery has a monitoring programme for the purpose of monitoring the noise levels during blasting. Navigation West Section will be incorporated into this monitoring programme. A report will be generated by a suitably qualified person on a monthly basis to present the noise and vibration monitoring data and any identified trends, as well as recommended actions to be taken (if any). An annual report of the monthly monitoring data and interpretation thereof will be generated for submission to the DME.

2.6.11 Interested and Affected Parties

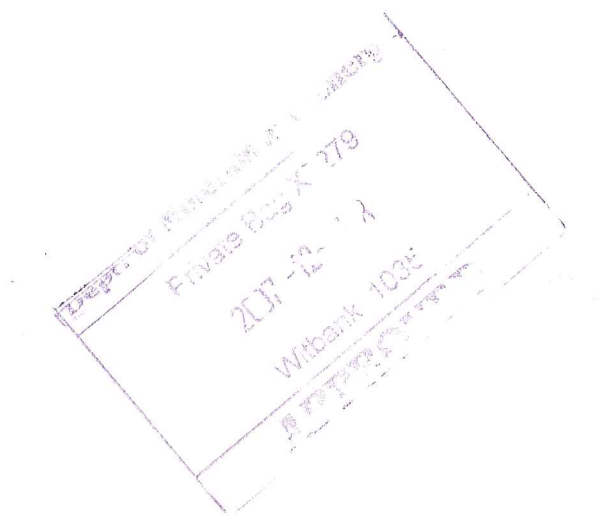
A list of all identified interested and affected parties is given in the Public Participation Document, and as a separate document to this submission. The contact details of any additional or new parties that would like to be included in the list will be incorporated.

Landau Colliery has regular meetings with the interested and affected parties. Landau Colliery will continue having these meetings and will include the mining operation at Navigation West Section.

Meetings are held with interested and affected parties on a six monthly basis.

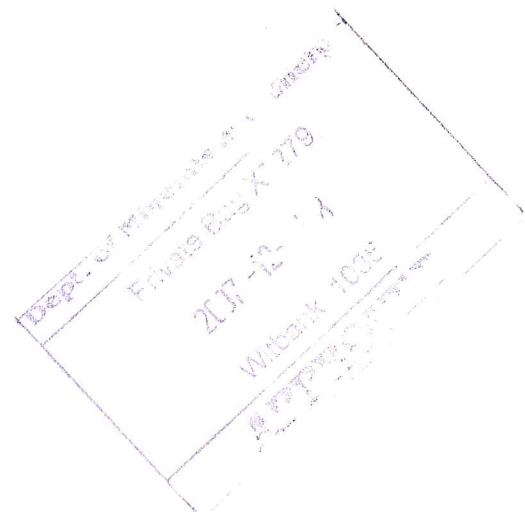
The mine also uses an open door approach with its surrounding inhabitants and landowners. This allows the mine to pro-actively react to any perceived complaint from its neighbours thus ensuring that the situation is resolved timeously.

A record of all interaction with I&APs, including complaints, will be kept, and will be made available to any I&APs upon request. A report presenting the interaction with the I&APs, as well as the action taken by the mine in response to a complaint / issue, will be generated and submitted to the DME on an annual basis. Such a report will also be made available for both internal and external auditing purposes.



SECTION THREE

Proposed Timetable, Duration & Sequence



3. PROPOSED TIMETABLE, DURATION & SEQUENCE

3.1 SUBMISSION OF MINING RIGHTS APPLICATION

Anglo Coal remains to submit an application under section 7 of Schedule II of the MPRDA for conversion of mining right ML 10/1995.

3.2 START AND DURATION OF CONSTRUCTION PERIOD

Construction will last for a period of between 8-122 months. The plant will be mobile and will be brought to site by the mining contractor. Construction of the flood protection levee will take up to a year, but can run on a slower timeline because mining will not start within the floodplain.

3.3 PROPOSED START OF MINING, FULL PRODUCTION AND CESSATION OF PRODUCTION

Mining will start immediately on completion of the construction period.

3.4 PROPOSED REHABILITATION PROGRAMME

Rehabilitation will take place concurrently with advance of mining. The first areas will become available for rehabilitation about eight months after commencement of mining.

3.5 PARTIAL CLOSURE APPLICATIONS

No partial closure is being considered. The pit has a ten-year life after which final rehabilitation will be completed and the site maintained until in a self-sustaining state.

3.6 PROPOSED DECOMMISSIONING AND AFTERCARE PROGRAMME

Anglo Coal commits to maintain the site until such time as it can be demonstrated through scientifically defensible monitoring data that the site is self-sustaining. For planning purposes, it has been assumed that this will be for the period that the pit takes to fill and for a period of at least another three years thereafter. The pit will be regarded as being filled when the in pit water level has reached 1576 mamsl. During this period the following activities will be carried out:

First 5 years:

- Ecological assessment every second year to evaluate performance of the planted pasture

community.

- Quarterly surface water sampling
- Quarterly groundwater level monitoring and water quality analysis from selected boreholes only.

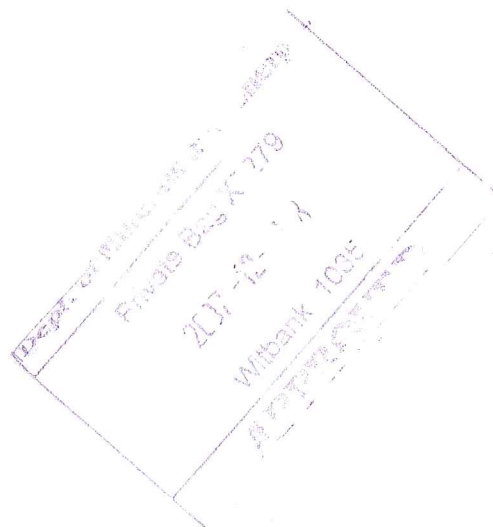
Years 5 till pit fills:

- Annual site assessment and performance check
- Annual surface and ground water sampling

3.7 PROPOSED DATE FOR CLOSURE APPLICATION

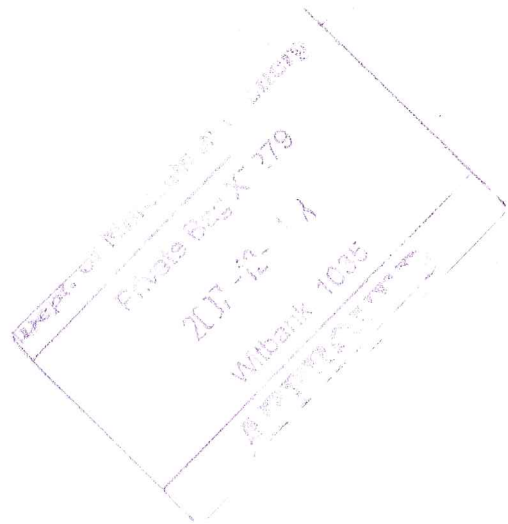
The date for application for closure is not currently known. Anglo Coal commits to maintain the site until such time as it can be demonstrated through scientifically defensible monitoring data that the site is self-sustaining.

For planning purposes, it has been assumed that this will be for a period of at least three years after the final water body has filled. The rate of groundwater recovery has been modelled and predicted to take between 15 and 25 years from cessation of mining.



SECTION FOUR

Financial Provision



4. FINANCIAL PROVISION

In terms of section 41 and regulations 51(b)(v) and 54 of the Mineral and Petroleum Resources Development Act No. 28 of 2002 (MPRDA), the applicant must make financial provision for the rehabilitation of the negative environmental impacts from the proposed Navigation West Section. In terms of the above-mentioned sections, the applicant is further required to determine the quantum of the financial provision, which must include costs for premature closure, decommissioning and final closure and post closure management of the residual and latent environmental impacts.

In view of the above and for the purpose of this environmental management programme, AOL has determined the quantum of the financial provision for Navigation West Section. The quantum was determined for premature and planned closure, including decommissioning, final rehabilitation and post closure maintenance of the mine, i.e. the maximum cost of rehabilitation during construction of the mine, as well as the financial provision that will be required at the end of life of the Navigation West Section. AOL will review the quantum on an annual basis for premature and planned closure of the mine, in order to determine the annual contribution to the environmental trust and the funding gap with regards to premature closure.

4.1 DETERMINATION OF THE QUANTUM

Consultants Venn and Milford Quantity Surveyors, have calculated the cost of premature and planned closure, based on the current mining plan of Navigation West. The report is included as Attachment 5 to this EMP. Closure costs will be reviewed in detail during 2007 as part of an Anglo Coal three yearly exercise on closure liabilities. Table 3 summarises the cost of premature and planned closure, as well as the balance in the environmental trust for Navigation West and Landau Colliery.

Table 3: Summary of Cost of Closure and Status of Environmental Trust

Landau Colliery Sections	Cost of premature closure	Cost of planned closure	Balance in Environmental Trust
1 Kromdraai and Navigation	R 146,299,592	R 145,965,101	R 79,639,482
2 Water Pollution	R 102,570,070	R 102,570,070	R 77,306,036
3 Navigation West	R 25,290,950	R 52,910,551	R 0
Total	R 274,160,612	R 301,445,722	R 156,945,518

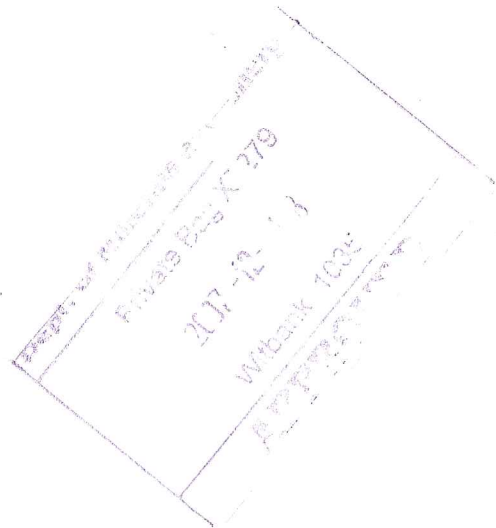
Rand value as at 31 December 2006

Details of the quantum calculation are given in Section 10: Confidential Information.

4.2 METHOD OF PROVIDING FOR THE FINANCIAL PROVISION

Anglo Coal will fund the costs of planned closure through the Anglo Coal and Base Metals Environmental Rehabilitation Trust, a trust established in terms of section 10(1)(c)(h) of the Tax Act. Audited accounts and balances of the trust are submitted to the Department on an annual basis. By using this mechanism to fund closure costs, it is inevitable that a gap exists between the balance in the trust and the cost of immediate closure. This gap will be funded by means of bank guarantees to an extent to be agreed upon between Anglo Coal and the Department.

Closure costs are reviewed annually by Landau Colliery as part of the budgeting cycle. Additionally, every third year an independent third party reviews the closure plan and recalculates closure costs. This will be done during 2007. Consequently, bank guarantees to cover the funding gap will be adjusted annually in accordance with changes in the environmental trust balance and the cost of premature closure.



5. ENVIRONMENTAL EMERGENCIES / REMEDIATION PROCEDURES AND AWARENESS PLAN

Landau Colliery has developed procedures for environmental-related emergencies for the entire mine, which are explained in more detail below. Since the proposed Navigation West Section will be within the mining area of Landau Colliery the above-mentioned procedures will be applicable to the project area.

Note that these procedures will be revised by the responsible person. The date of commencement of the revised procedures will always be indicated to prevent confusion.

5.1 BACKGROUND

5.1.1 Scope

This procedure describes the process to be followed to report and deal with SHE emergencies that occur on the mine property. It is important that panic is not allowed and that no person, other than those directly involved, is allowed to interfere. Prevention is better than cure thus it becomes every person's duty to prevent negligence and carelessness since this may lead to a catastrophe. The best equipment is of little value if used by persons who are not safety or environmentally conscious at all times or properly trained.

The diligent installation, maintenance and use of emergency equipment are of equal importance in order to obtain maximum benefit during an emergency. Under no circumstances must any person communicate with the news media or general public during an emergency. Any statements or press releases will be given by the General Manager in consultation with Head Office

Every official on the mine will be on 24 hours standby during an emergency and must obtain permission from the General Manager before leaving the property or his residence. Current mine telephone directories must be kept on hand at all telephones and offices.

5.1.2 Objectives

The standard environmental emergency procedure serves:

- To ensure quick and controlled response to environmental emergencies through the use of correct personnel and equipment.
- To prevent incidents from becoming more extensive through the timeous contact and arrival of trained personnel on site.
- To establish a management mechanism from which a range of safety, environmental and health issues can be dealt with should they arise.

5.1.3 Safety Risks Associated with Activity (Identified Hazards)

Specific safety risks will have to be determined for each activity prior to commencement of emergency activities. No safety risks were identified in the implementation of this standard procedure.

5.1.4 Responsibilities of the General Manager

- It shall be the responsibility of the Manager to appoint a person or persons to review and audit the activities as covered by the scope of this Procedure.
- The Manager shall ensure that the audits are being conducted systematically and at regular defined intervals.
- The Manager shall ensure that the person nominated to perform audits of the emergency system, are given all the necessary assistance and facilities to conduct the task effectively.

5.1.5 Legal Requirements

Some specific legal requirements were identified for the emergency response activities in the mining industry. A number of SABS codes apply such as the SABS Code 0232 - the minimum requirements for emergency responses. Legislation requires that governmental agencies are kept informed of incidents and accidents:

- Regulation 51 of Regulations under the Minerals and Petroleum Resources Development Act No. 28 of 2002 – *Procedure for environmental related emergency and remediation.*
- Mine Health & Safety Act No.29 of 1996 – *Manner of Reporting and Keeping of Information Regarding Incidents and Emergencies.*
- Occupational Health & Safety Act No. 85 of 1993 – *Employee Requirements to Report Incidents where Activity has Occurred.*
- Section 20 of the National Water Act, 1998 (Act 36 of 1998) – *Emergency incidents.*
- Section 30 of the National Environmental Management Act, 1998 (Act 107 of 1998) – *Control of emergency incidents.*

5.1.6 Monitoring & Activity Procedure

5.1.6.1 Method of Emergency Activity Identification

Emergencies identified by the mining operation come from a number of sources. Some of these were not identified from risk assessments, while others were subject to risk analysis. Those dealing with loss of property were not done as part of the ISO14001 EMS however, but as part of the mine Health and Safety process to reduce risks to employees and property.