

Drayton Management System Standard

Final Void Management Plan

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Revisions

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Document Information

1 PURPOSE

The purpose of this management plan is to provide a framework for the management of final voids remaining after the completion of mining operations.

2 SCOPE

This management plan describes the following:

- Location and physical status of each void;
- Potential final use for each void;
- Groundwater impacts;
- Potential environmental impacts;
- Actions and measures will be implemented to minimise impacts associated with final voids; and
- Monitoring and Management requirements for each void

3 DEFINITIONS

AEMR Annual Environment Management Report

Final Void Is the location of the active mine pit at closure that is not backfilled by mining operations.

S&SD Manager Drayton's Safety and Sustainable Development Manager

4 STATUTORY REQUIREMENTS

This plan has been developed in accordance with the requirements of the NSW Department of Planning for the Drayton Mine Extension (MP 06_0202) issued in 2008.

Conditions regarding final void management are as follows:

Condition	Condition Details	Reference
S3.40	<p><i>The Final Void management plan must:</i></p> <ul style="list-style-type: none">a) <i>Justify the planned location and future use of the final voids</i>b) <i>Incorporate design criteria and specifications for the final voids based on verified groundwater modelling predictions and a re-assessment of post mining groundwater equilibrium;</i>c) <i>Assess the potential interactions between creeks on the site and the final voids; and</i>d) <i>Describe what actions and measures would be implemented to:</i><ul style="list-style-type: none">• <i>Minimise any potential adverse impacts associated with the final voids; and</i>• <i>Manage and monitor the potential impacts of the final voices over time.</i>	5.6

5 MANAGEMENT PLAN REQUIREMENT

5.1 Responsibilities

Technical Services Manager

The Technical Services Manager is responsible for:

- Incorporating specified design criteria and specifications into the mine planning phase of final voids

Safety & Sustainable Development Manager (S&SD)

The S&SD Manager is responsible for:

- Coordinating modelling by independent consultants as may be required to verify trends in monitoring.

Environment Coordinator

The Environment Coordinator is responsible for:

- Monitoring, collecting and analysing monitoring data
- Reporting on water quality and quantity within void management areas.
- Assessing the impact of ground water ingress on final voids.

5.2 Audit/Review Schedule

This management plan is to be reviewed at least every three years or as otherwise directed by the Director-General of the NSW Department of Planning. The review process is to reflect independent environmental audit findings, changes in environmental legislation, standards and guidelines, and changes in technology or operational procedures.

In accordance with Project Approval (06_0202), at the end of year two of the development, and every three years from there on, Drayton will commission an independent environmental audit to the satisfaction of Director-General of the NSW Department of Planning. The audit will include an assessment of the adequacy of all management plans. Following the audit, this management plan may be updated if appropriate.

This management plan has been prepared in consultation with the NSW Department of Planning, Department of Environment and Climate Change, Department of Water and Energy, Department of Primary Industries and Muswellbrook Shire Council.

5.3 Records Management

All monitoring records for the management of final voids must be kept on file in the S&SD department for the duration of the life of mine plus any additional period required by statute or regulation.

5.4 Revision Status

This revision replaces version 1 issued 2005 as per Development Consent issued by Muswellbrook Shire Council.

5.5 References

This management plan has been prepared in accordance with the following approvals/Acts or regulatory conditions:

- Environmental Planning and Assessment Act, 1979 (EP&A Act) administered by the Department of Planning (DoP) and associated project approval conditions (Ref MP 06_0202).
- Anglo Coal Drayton Mine Environmental Assessment 2007.

5.6 Documents

5.6.1 Location and Proposed Future Use of Final Voids

Locations of proposed final voids were nominated in the 2007 Environmental Assessment. There will be three final voids remaining post closure, located in the southern end of the East Pit, the eastern side of the East Pit and the northern end of the North Pit. Development of these voids will progress generally in accordance with this assessment and in consultation through regular meetings with DPI, Mt Arthur Coal and Macquarie Generation.

Whilst the final end use has not been fully confirmed, predominantly their proposed final use will be a combination of water storage, tailings and ash disposal. The NN void may be utilised for tailings disposal from nearby mines. The Southern void may be either tailings or water storage for neighbouring mines or power stations and the Eastern void may be utilised for ash disposal from nearby power stations.

Ultimate use of the final voids has not been fully determined however Drayton is currently in discussion with various parties concerning the long term use of the voids. Firm arrangements and agreements have not been settled, however options do exist and will be explored with interested parties and progress will be included in the next Mining Operations Plan submission.

Figure 1 shows the general location of final voids as detailed in the 2007 Environmental Assessment.

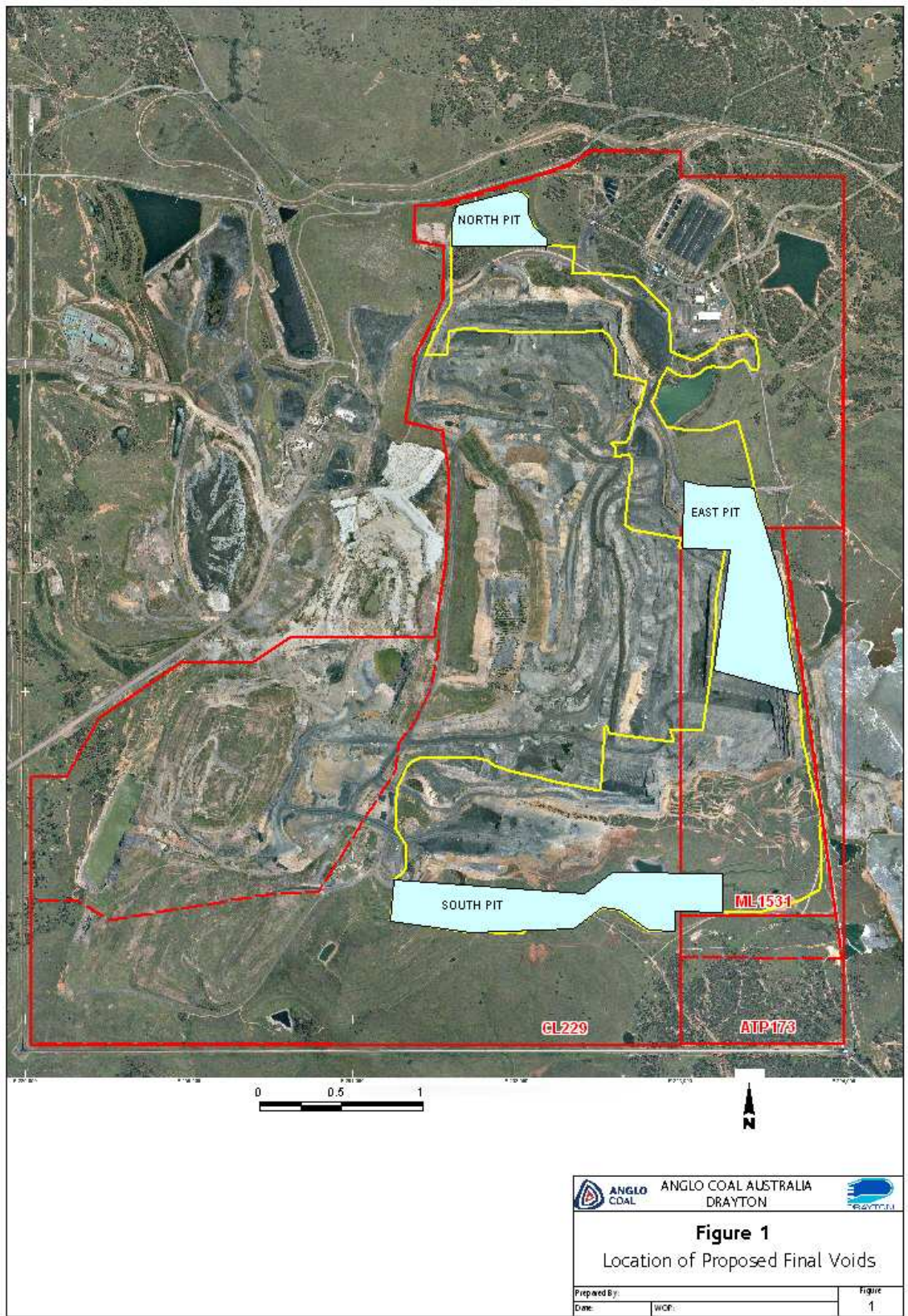
5.6.2 Design Criteria and Specifications – Groundwater Implications

Final voids will be designed in accordance with the existing and yet to be approved future Mining Operations Plans. Highwalls will be bunded at the crest with fencing being erected to prevent access from the public or wildlife and to prevent erosion. Low walls will be revegetated to a level of inferred water storage, with pastures and native tree corridors being established on the low wall slopes. Low walls will be designed in accordance with DPI requirements.

Rainfall and runoff will be diverted where possible away from final voids, however on low walls this will not be possible, and as such level spills will be constructed to successfully control water entry to the void.

Groundwater inflows have been estimated as required in the 2007 Environmental Assessment to be up to 2.7ML per day with the final steady state water level in the Northern void being about 160m AHD, the eastern Void at 149m AHD and the Southern void at 157m AHD.

The environmental assessment 2007 also states that the final voids will act as groundwater sinks and no contamination of the surrounding aquifers is expected.



5.6.3 Interactions with creeks and waterways

The environmental assessment 2007 concluded that groundwater discharge to the major surface water features in the Upper hunter, namely Muscle Creek, Ramrod Creek and the Hunter River would not experience groundwater discharges due to Drayton's mining operations. Saddlers Creek would naturally receive direct recharge from rainfall and surface runoff however it should not be impacted by this project.

5.6.4 Measures to be implemented to manage final voids

Post mining, dewatering of the pits will be discontinued and the void space (porosity) of the spoil will gradually fill with water until an equilibrium water table level establishes within the spoil material. The final voids will therefore be sinks to groundwater seepage, will collect rainfall and runoff and will lose water through evaporation.

A bund will be constructed at the top of the highwall around the final voids both for safety and to divert runoff away from highwalls to prevent erosion from occurring.

Additional modelling will be undertaken on water held within the void to assess the long-term implications for both local and regional ground water flows. This shall include salinity and migration of elements. This shall be coordinated by the S&SD Manager and the Long-Term Planning Engineer and shall be incorporated into final landform design and establishment. A review of the water balance model for Anglo Coal Drayton Mine may also assist this capacity.

If any adverse effects are derived from this modelling or physical data collection, strategies will then be implemented to minimise the potential for further degradation to surrounding ground water and watercourses, utilising the guidance of independent consultants. Details of any subsequent studies will be included in the AEMR.

5.6.5 Monitoring Measures

It was considered, in the environmental assessment, that there is sufficient observation bores in existence to monitor the impacts on groundwater from the mining operation. Several of these bores have been in existence since pre mining and will remain after post mining for monitoring purposes, giving a vast amount of information available for baseline studies. Additional monitoring bores may be installed in the future to further assess post mining impacts.

Groundwater monitoring shall continue at three monthly sampling intervals. Sampling will be undertaken at selected bores that monitor groundwater systems in the East Pit, north and south of them mining areas. Groundwater monitoring shall also consist of both levels and quality.

Off site bores on privately owned land will be monitored where possible for current land use, depth, yield and water quality, to provide baseline data against which potential impacts of mining can be monitored.

6 APPENDICES

Nil