

Drayton Management System Standard

Environmental Monitoring Program

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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 environmental monitoring to be conducted at Drayton.

2 SCOPE

This procedure describes the various environmental monitoring requirements for the following environmental aspects:

- Meteorology
- Noise
- Air Quality
- Blasting and Vibration
- Surface water
- Groundwater
- Rehabilitation
- Coal Transport
- Greenhouse & Energy Efficiency
- Waste

This monitoring program also assists Drayton in maintaining compliance with ISO14000 requirements, the Anglo Coal SHECMS and the Anglo American (AA plc) Environment Way protocols.

3 DEFINITIONS

AEMR Annual Environment Management Report

DECC Department of Environment and Climate Change (EPA)

S&SD Manager 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 blast management are as follows:

Condition	Condition Details	Reference
S5.2	<i>The Proponent shall prepare and implement an Environmental Monitoring Program for the Project to the satisfaction of the Director-General. This program must be submitted to the Director-General within 6 months of this approval, and consolidate the various monitoring requirements in Schedule 3 of this approval into a single document, and be submitted to the Director-General concurrently with the submission of the relevant monitoring programs/plans.</i>	5.6

5 PROCEDURAL REQUIREMENT

5.1 Responsibilities

S&SD Manager

The S&SD Manager is responsible to:

- Ensuring all environmental monitoring is undertaken as required by the Project Approval conditions.

Environment Coordinator

The Environment Coordinator is responsible to:

- Ensuring all environmental monitoring is undertaken as per Project Approval requirements.
- Ensure all environmental monitoring is undertaken as per the relevant Australian Standard or Approved Method.
- Ensure all monitoring results are entered into the Drayton Environmental Database.
- Review environmental processes and data collection.
- Implementing the environmental monitoring program.

Environmental Graduate

The Environmental Graduate is responsible to:

- Undertake environmental monitoring as required by the Project Approval.
- Ensuring that correct procedures are followed during sample collection.
- Entering all environmental monitoring results into the Drayton environmental database.
- Ensuring all environmental monitoring equipment is maintained and serviced as required.
- Ensuring all environmental equipment is calibrated according to equipment specifications.

5.2 Audit/Review Schedule

This monitoring plan is to be reviewed at least every three years or as otherwise directed by the Director-General of DoP.

In accordance with Project Approval (06_0202), at the end of year two of the development, and every three years thereafter, Drayton will commission an independent environmental audit to the satisfaction of Director-General of DoP. The audit will include an assessment of the adequacy of all management and monitoring plans. Where necessary, following the audit this monitoring plan may be updated and action taken to improve environmental monitoring practices at Drayton.

This procedure has been prepared in consultation with the NSW Department of Planning.

5.3 Records Management

All records of environmental monitoring must be kept on file in the S&SD department for the duration of the life of mine.

5.4 Revision Status

June 2008

Updated as per the requirements of the 2008 Project Approval.

5.5 References

Environmental monitoring at Drayton is conducted in accordance with the following approvals/Acts, regulatory or corporate requirements:

- The Protection of the Environment Operations Act, 1997 (PoEO Act) administered by the Department of Environment and Climate Change (DECC) and associated environmental licence (Ref 1323).
- 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.
- Various management plans as required by Project Approval MP 06_0202
- ISO 14000 requirements
- Anglo Coal Safety, Health, Environment and Community Management System (SHECMS)

5.6 Documents

5.6.1 Monitoring Requirements

This section describes the type, frequency and location of various environmental monitoring requirements as described in the Project Approval (Schedule 3). Monitoring sites are shown in Figure 1.

Table 1
Overview of the Project Environmental Monitoring Program

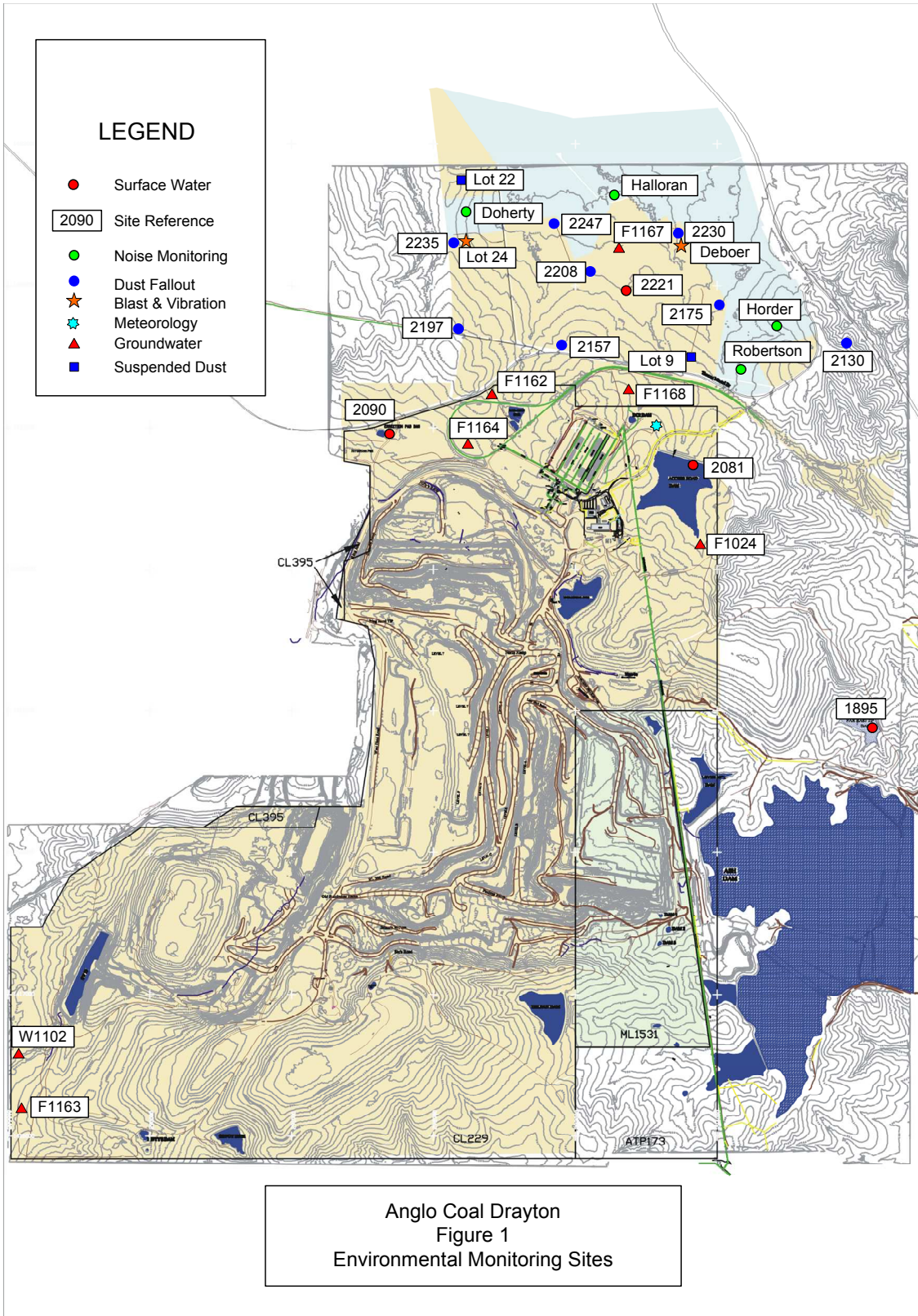
Parameter	Monitoring Sites	Frequency	Section
Meteorological			
Temperature Relative Humidity Rainfall Wind Velocity Wind Direction	Automatic Weather Station	Continuous	5.6.2
Noise ⁽¹⁾			
Attended noise monitoring	Doherty residence Halloran Residence Robertson Residence Horder Residence	Weekly	5.6.3
Real Time Monitoring	Lot 9 Antiene (Barn Owl)	Continuous	5.6.3
Air Quality			
Dust Deposition	2130, 2157, 2175, 2197, 2208, 2230, 2235, 2247	Monthly	5.6.4
High Volume Air Sampling (TSP)	Lot 22 Antiene	Continuous six day cycle	5.6.4
High Volume Air Sampling (PM ₁₀)	Lot 9 Antiene	Continuous six day cycle	5.6.4
Blasting and Vibration ⁽²⁾			
Ground Vibration	Lot 24 Antiene De Boer monitor	Every blast	5.6.5
Airblast Overpressure	Lot 24 Antiene De Boer monitor	Every blast	5.6.5
Surface Water ⁽³⁾			
pH, EC, TDS, NFR, Na, Mg, K, Ca, SO ₄ , Cl, HCO ₃	2081, 2221, 1895, 2090	Monthly	5.6.6
Groundwater			
Standing Water Level, field pH, EC, Salinity and TDS (on site)	F1167, F1168, F1162, F1164, F1024, F1163,	Monthly	5.6.7

	W1102		
Standing Water (offsite) (Identified and Utilised Bores Only)	GW060263, GW047690, GW055208, GW080972	Quarterly (if required)	5.6.7
Rehabilitation			
Rehabilitation performance will be monitored to ensure vegetation is establishing. Maintenance work will be assessed.	Rehabilitation Sites	Annually	5.6.8
Tree establishment – Thomas Mitchell Drive	Thomas Mitchell Drive Tree Establishment Area	Annually	5.6.8
Offset Strategy	Offset Area	Annually	5.6.8
Coal Transport			
Coal production and train movements	Rail Loadout	Annually (coal production) Daily (train movements)	5.6.9
Greenhouse & Energy Efficiency			
Diesel Electricity Explosives	Equipment usage and blasting	Annually	5.6.10
Waste			
Waste Oil Metal General Waste Recyclable Wastes	Monthly Collection Waste data forms	Annually	5.6.11

1 *Attended Noise Monitoring: will be undertaken at the nearest location to the residence and shall be subject to consent of the resident. Attended noise monitoring may also be required at additional monitoring locations dependent upon requests received by landowners and/or residents.*

2 *Blasting and Vibration levels may also be monitored at other residences dependent upon complaints received. These will be conducted using a portable monitor.*

3 *Surface water bore monitoring of registered offsite bores will be commenced when bores have been located and permission obtained from resident land owner.*



5.6.2 Meteorological Monitoring

An automatic weather station has been operational at Drayton since 1982. Temperature, relative humidity, wind speed, wind direction and rainfall are recorded on a 5 minute basis, with summaries being obtained hourly and daily. This station is operated in accordance with the requirements of the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales (EPA, 2001)*. This station will continue to be utilised for the life of the mining operation.

5.6.3 Noise

Attended noise monitoring is undertaken on a weekly basis at the following representative residences located within close proximity to Drayton's mine lease boundary:

- Halloran residence – Pamger Drive Muswellbrook
- Robertson residence – Thomas Mitchell Drive, Muswellbrook
- Doherty residence – Balmoral Road, Muswellbrook
- Horder residence – Thomas Mitchell Drive, Muswellbrook

Parameters to be measured will include Leq, L_{Amax}, L_{A1}, L_{A10}, L_{A50}, L_{A90} being measured over a 15 minute which will be quantified and characterised.

Unattended monitoring will be undertaken for a period of one week on an as needs basis to supplement the operator attended monitoring to quantify the overall ambient noise amenity criteria for the Project.

Additional attended monitoring may be undertaken on an as needs basis if a request is received from resident listed in Table 1 of the Project Approval conditions.

In addition, a real time noise monitoring station will be installed at Lot 9 Antiene.

5.6.4 Air Quality

An air quality management plan has been in operation at Drayton since 1982. This details dust deposition, TSP (total suspended particulates) and PM10 (particulate matter less than 10µm in size) concentrations utilising a network of dust depositional gauges and high volume air samplers.

5.6.4.1 Dust Deposition

The following dust deposition monitoring sites are monitored on a monthly basis to determine community dust levels. These gauges have been in operation for over 20 years and have well established baseline levels to compare current ambient levels with. Dust depositional gauges locations are as follows:

- DG 2130
- DG 2157
- DG 2175
- DG 2197
- DG 2208
- DG 2230
- DG 2235
- DG 2247

Dust depositional gauges are collected monthly and analysed for ash, combustible matter and insoluble solids. All results will be presented in Drayton's AEMR.

5.6.4.2 Total Suspended Particulates

One high volume air sampler will be used to monitor total suspended particulates. This sampler has been in operation for several years and has established baseline levels to compare current ambient levels with. This is located at:

- Lot 22 Antiene

This high volume air sampler will operate on a six day continuous cycle. All results will be presented in Drayton's AEMR.

5.6.4.3 Particulate Matter – PM₁₀

One high volume air sampler will be used to monitor particulate matter less than 10µm in size. This sampler have been in operation for several years and have a long baseline levels to compare current ambient levels with. This sampler is located at:

- Lot 9 Antiene

This high volume air sampler operates on a six day continuous cycle. All results will be presented in Drayton's AEMR.

5.6.5 Blasting and Vibration

A blasting management program is well established for the Project, which includes monitoring of airblast overpressure and ground vibration levels for all blasts from the Project. Drayton has been operating for in excess of 20 years and has an extensive database of airblast and ground vibration levels from all blasts. Drayton utilises real time blast monitoring system, which allow instant access to airblast and vibration levels post blasting.

Monitoring locations in relation to residences are:

- Lot 24 Antiene – adjacent to Doherty property
- De Boer monitor – adjacent to De Boer property.

These permanent stations have been commissioned to represent levels in the Antiene estate.

In addition, supplementary monitoring can be undertaken on an as needs basis utilising a portable noise and vibration monitor.

5.6.6 Surface Water

A surface water monitoring program has been in place at the Project since 1982. All major dams, both mine water and clean are monitored on a monthly basis for Ph, electrical conductivity, total dissolved solids, suspended solids, sodium, magnesium, potassium, calcium, chloride, sulphate and bicarbonates.

Key surface water sites in regard to offsite impacts are as follows:

- Dam 2081
- Dam 2221
- Dam 2090
- Dam 1895.

Surface water quality monitoring and sample collection, storage and transportation are undertaken in accordance with the procedures outlined in the relevant sections of AS 5667 – 1998 (AS 5677) *Water Quality – Sampling*. All analysis is undertaken by a NATA accredited laboratory.

5.6.7 Groundwater

A groundwater monitoring program has been in place since 1982. This involves monthly monitoring of standing water levels. In more recent years, this has been supplemented by the addition of pH, electrical conductivity, salinity and total dissolved solids. Groundwater monitoring sites are as follows:

F1167
F1168
F1162
F1164
F1024
F1163
W1102.

The groundwater monitoring plan will also monitor specific offsite bores, if they are actively utilised. These have been identified as:

GW060263
GW047690
GW055208
GW080972.

If upon investigation these bores cannot be located using information supplied by the Department of Water & Energy, are not being utilised or landowner consent cannot be gained, these bores will not be monitored. If this is the case, documentation will be retained as to the reason for non monitoring of these bores only.

5.6.8 Rehabilitation

Rehabilitation performance will be monitored on an ongoing basis to assess vegetation establishment and to determine if there is a need for additional maintenance measures to be implemented. Details of this monitoring plan will be included in the AEMR and will be included in the Annual Department of Primary Industries – Minerals annual inspection.

Tree establishment will also be monitored and reported in the AEMR.

Monitoring of the Offset area will be conducted however details pertaining to this monitoring will be included in the next revision as the Offset management strategy has not been determined as yet.

5.6.9 Coal Transport

Records are kept regarding annual tonnages and coal tonnages transported from site on an annual basis. This includes recording total number of coal haulage train movements on a daily basis. This information is reported in the AEMR.

5.6.10 Greenhouse & Energy Efficiency

Anglo Coal Australia is a signatory to the Greenhouse Challenge and as such diesel, electricity and explosives are recorded on an annual basis from which carbon dioxide (CO₂) equivalent emissions can be calculated. These CO₂ equivalent greenhouse gas emissions will be reported in the AEMR.

5.6.11 Waste

Waste generation has been recorded at Drayton for several years. This practise shall continue with waste products removed from site being recorded and reported in the AEMR. This practice shall continue.

5.6.12 Reporting

Drayton shall prepare an AEMR as required under the Department of Primary Industries – Mineral Resources, Mining, Rehabilitation and Environmental Management Process (MREMP) framework. The AEMR will consolidate all environmental monitoring and reporting as required by this monitoring plan, the Project Approval Conditions and EPL 1323.

A copy of this management plan will be made available to Drayton's Community Consultative Committee (CCC). In addition, the management plan will also be publicly available on Drayton's website www.anglocoal.com.au.

In accordance also with the Project approval conditions, a summary of the environmental monitoring results will also be made publicly available on the website and shall be updated quarterly.

6 APPENDICES

Appendix 1 - Environmental Signoff

Appendix 2 - Regulatory Correspondence

Environmental Signoff

To Be Used By All Persons Carrying Out Environmental Monitoring at Anglo Coal (Drayton Management) Pty Limited Environmental Management System

PROCEDURE TITLE: Environmental Monitoring Program

PERSONS RESPONSIBLE (AS LISTED)

NAME: Peter Forbes

POSITION: S&SD Manager

SIGNATURE FOR SIGN OFF: _____

DATE:

NAME: Pam Simpson

POSITION: Environment Coordinator

SIGNATURE FOR SIGN OFF: _____

DATE:

Regulatory Correspondence

Nil required