
MINE SAFETY MANAGEMENT SYSTEM

Outburst Management Plan

OUTBURST MANAGEMENT POLICY

The Management of x Colliery is committed to reducing and minimising the risks associated with outbursts in development panels and on longwall faces.

This aim will be achieved by:

- a) Drainage of in-seam gas contents to below threshold limits
- b) Implementing a system of measurement and assessment of outburst risk prior to authorising normal mining to take place

It is not the intent of management at this time, to mine areas where gas content exceeds the threshold for normal mining by mining under outburst conditions.

At some time in the future consideration may be given to mining under outburst conditions or to adopt methods of remote mining. Any proposed procedure for remote mining or outburst mining will be subject to a comprehensive risk assessment prior to implementation

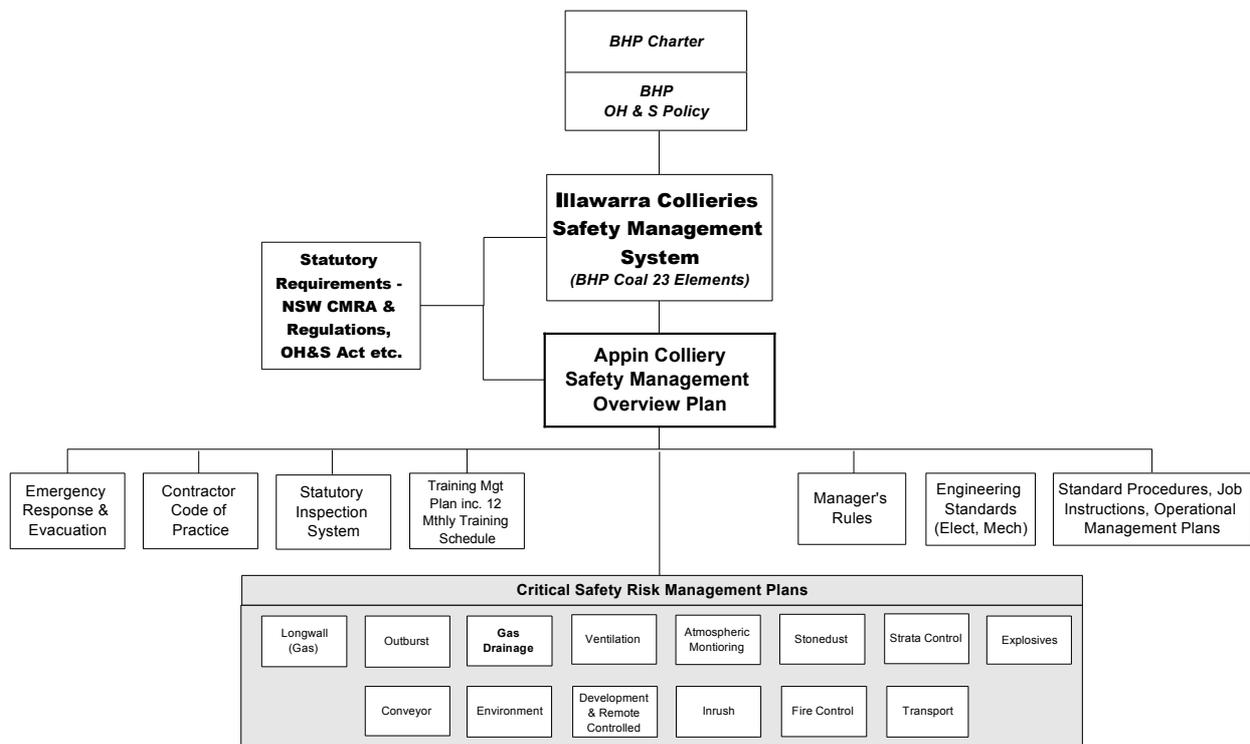
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1. INTRODUCTION

The Outburst Management Plan has been implemented at Colliery as part of the Mine Safety Management System to effectively control the risks associated with the outburst hazard. The relationship between the Outburst Management Plan and other components of the Mine Safety Management System is illustrated below.



1.1 Objectives

The prime objective of the Colliery Outburst Management Plan (The Plan) is to facilitate exploratory in-seam drilling and gas drainage with the aim of reducing seam gas contents, in all areas of the mine where Development and Longwall operations (and subsequent longwall extraction) are to be carried out. Resultant gas content levels ensure that the risk of an outburst (or other release of dangerous quantities of noxious or flammable gas) is minimised and allow Normal Mining operations to be carried out.

In exceptional instances where this objective is unable to be realised, The Plan makes allowance for alternate mining procedures to be used, under strictly controlled and considered circumstances, which maximise the protection provided to employees and the operation.

1.2 Scope

The Plan applies to all employees of - Colliery who are engaged in development mining, longwall mining, gas drainage or associated tasks and any other parties associated with the application of this Plan. It covers the strategies associated with Prediction and Prevention techniques as well as methodologies associated with the Protection of personnel and the operation from the effects of an outburst.

The requirements of The Plan take effect from the date of this Plan.

In addition to Colliery's requirements for a safe workplace, the requirements of the Department of Mineral Resources (NSW) Outburst Mining Guideline (MDG 1004) have been considered and addressed.

1.3 Limitations and Assumptions

The Outburst Management Plan has been formulated primarily in response to a Critical Safety Risk identified as existing in development and longwall operations.

The Plan has been formulated strictly in accordance with the MDG1004 Guidelines and, hence, any assumptions made relating to processes and procedures involved in this document are intrinsic to the processes and procedures required by that Guideline.

1.4 Definitions

The Plan	The Colliery Outburst Management Plan
Outburst	A violent ejection of coal and a large volume of noxious or flammable gas from a working face area. It is associated with an abnormally high release of gas, the volume of which is significantly higher than can be accounted for by the normal gas pressure and content of the coal displaced. The event occurs over a short period which may extend up to several seconds and will often feature the existence of a remnant conical cavity in the coal.
Structure	Any disturbance whereby a coal seam is altered from its original depositional state. Structures associated with the Bulli Seam may have outburst potential where they change gas migration or the gas drainage characteristics of the coal (eg: fault zones exhibiting the presence of fault gouge or mylonite, dykes, zones of intensified jointing, shear zones, weak/broken/hard (highly stressed) coal or zones of abnormal mineralisation).
Gas Content	The total desorbable volume of gas contained in a known mass of coal at in-situ conditions expressed in cubic metres (at 20 degrees C temperature and 101.3 kPa pressure) per tonne of coal (at in-situ ash and

moisture conditions). Analysis of Gas Content performed to AS3980 or another approved method.

Gas Composition

The chemical composition of the seam gas as determined by Gas Chromatography expressed as % V/V dry gas on an air free basis. Analyses of Gas Composition is performed to AS 3980 or another approved method.

Gas Drainage

The systematic drilling of boreholes into the coal seam and the extraction of gas to reduce the Gas Content of the coal to below the appropriate threshold prior to mining.

Normal Mining

The documented procedures for the operation of Development and Longwall panels where Gas Drainage has been successful in lowering the seam gas content to below the Normal Mining threshold value.

Outburst Risk Review Team (ORRT)

A group with defined responsibilities under The Plan concerning the Authorisation of Mining, which is normally comprised of the:

- Mine Manager
- Gas Drainage and Ventilation Coordinator
- Undermanager-In-Charge,
- Gas Drainage Engineer,
- Mine Geologist
- Workforce Representative
- Development Coordinator

They, or in the event of unavoidable absence an appropriately qualified delegate, must attend each meeting. Other personnel may be required by the team to attend meetings to provide specialist information.

The core personnel required to authorise the “Authority to Mine” are the:

- Mine Manager
- Undermanager-in-Charge
- Gas Drainage Engineer

Oxygen Self Rescuers	Chemical Oxygen Self-Contained Closed Circuit Escape Breathing Apparatus. Current examples are the Fenzy Biocell 1 Start, Drager Oxybok and Drager Oxy K Plus units.
Threshold Gas Content	The maximum gas content of the in-situ coal which will allow a given mining procedure to be followed. There are threshold gas contents appropriate to Normal and Outburst Mining. These thresholds are documented graphically in
Gas Pressure	The equilibrium pressure exerted on the coal by in situ gas expressed in kPa.
Drill Pattern	A site specific pattern of in-seam drainage designed by the Gas Drainage/Ventilation Co-ordinator or appropriately qualified delegate under his control. These holes intersect the roadways at intervals indicated on the pattern and also provide indication of any structures.
Flank Hole	An in-seam drainage hole drilled sub-parallel to the panel direction and outside the line of the roadway(s) adjacent to the solid.
Old Workings	Workings of greater than ten (10) years of age.

2. PRINCIPAL IDENTIFIED HAZARDS

Colliery has a long history of mining in the Bulli Seam. The Bulli Seam has been designated by the Department of Mineral Resources as being prone to outbursts of gas and coal. During mining operations has experienced outbursts in the past and accepts the potential for this Critical Safety Risk to occur at the mining depths and with the gas contents currently being experienced.

Process Hazard Analysis (PHA) workshops have been conducted and confirmed outbursts as a Critical Safety Risk that needed to be controlled. There was, however, no need to conduct a PHA specifically for the purpose of assessing outburst potential and the hazards associated with this phenomenon. These are accepted as being :

- Asphyxiation as a result of displacement of oxygen by non toxic seam gases (predominantly methane) and burial by outburst coal and other solid matter,
- The toxic nature of Carbon Dioxide, where this represents a significant proportion of the seam gas,

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- Impact injuries to employees resulting from solid outburst material and
 - Damage to equipment and structures, especially ventilation appliances and the detrimental contributory effects of such damage.

Similarly, 's strategy for dealing with the outburst risk is consistent with accepted practice. A basic Principle of Operation is that no mining will take place when the gas content of the coal is above the established Outburst Threshold Level. Gas will be drained to below this level before mining is undertaken. There was, thus, no need to formally assess the effectiveness of the basic strategy in dealing with outbursts.

Individual processes and procedures within the Plan have been assessed by way of formal process analysis involving the Mine Manager, his technical advisers, principally the Undermanager in Charge, Ventilation Officer and Gas Drainage Engineer and workforce representation. There has been an independent assessment of the ability of the Plan to adequately address the Outburst potential at Colliery and of the degree of practical compliance with the provisions of the Plan. Recommendations for improvement arising therefrom have been incorporated in the Plan.

It is felt that the resultant Plan adequately addresses the Critical Safety Risk associated with outbursts at Mine and will be continuously improved as a result of the ongoing Audit and Review process.

3. CONTROL PROCEDURES

3.1 Introduction

The Colliery Outburst Management Plan has been developed to address the risk of a gas induced outburst. The Plan's prime operational objective is to carry out effective in-seam drilling and gas drainage, sufficiently in advance of development mining, in order to reduce in-situ seam gas contents to below the Normal Mining Thresholds and allow mining to be carried out under normal conditions.

Prediction, in the form of comprehensive data acquisition and extensive in-seam drilling, and prevention by way of effective gas drainage coupled with gas flow monitoring, and regular core sampling, so that the Mine Manager is always aware of the seam gas and structure environment into which the Mine is about to develop or extract, are the two prime components of The Plan. These form the input into the Authority to Mine process which, upon completion, will determine the mining methodology to be used to develop each roadway or sequence of roadways and extract longwall panels. Protection is offered to development operators by way of routine training in Outburst Awareness, the identification of outburst warning signs and use of First Response Rescue and Escape equipment, the provision of that equipment in the development panel at all times and the ability to suspend mining and initiate an inspection at any time should outburst warning signs be observed.

It is not the intent of Management at Colliery to mine any area under Outburst Mining conditions. Should drainage be proven, by subsequent core sampling, to have failed to reduce the seam gas content to below the Normal Mining Threshold,

the response will be to carry out supplementary drilling and/or allow additional drainage time.

All projected development drivages and longwall panels shall be assumed to exhibit outburst potential until all available information relating to those drivages has been assembled and assessed by the ORRT and clearly indicates evidence to the contrary. Predictive information allows the effective planning of in-seam borehole placement, gas drainage lead times and sampling strategy. Preventive information gives the ORRT data concerning the effectiveness of that work in reducing seam gas contents generally and, more specifically, in the vicinity of structures.

3.2 Prediction

Predictive information required to be assembled and available to allow effective planning of drilling and gas drainage and the subsequent sampling strategy is:

- historical information for both the area to be developed as well as previous and adjacent workings;
- geological data relating to structure identification, orientation and projection and seam characteristics, especially virgin gas content and composition. Such data can be obtained from a variety of sources, the most important of which are routine roadway mapping, inspection of anomalies uncovered during the mining process and the analysis of drilling logs;
- evaluation of all available external sources of information relating to Colliery (eg: exploration boreholes, seismic surveys etc.) and adjacent operations.

The Mine Geologist shall be responsible for the collection, analysis (with regard to outburst potential) and maintenance of this data. Specifically the Mine Geologist shall:

- a) Report on and maintain a record of all outbursts experienced within the lease area and gather and record as much data as is possible on outburst experienced in adjacent collieries.
- b) Maintain a data base of seam contours, structures and virgin gas contents and compositions to assist the Gas Drainage Engineer in the planning of his drilling, drainage and sampling strategy. This data base shall be Mincom design file DGN S39-195 or equivalent.

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- c) Examine the Drill Log Summary Sheet () of each in-seam borehole drilled within Colliery for the purpose of exploration, structure prediction or gas drainage and assess the relevance (from an outburst potential viewpoint) of any anomaly reported in those Logs, especially as such relates to projected structures in drivages under consideration.
 - d) Collate and map, at intervals not exceeding 1 month, all relevant features including the characteristics, location or projected location of all known and suspected structures and update details contained within Mincom design file DGN S39-195 or its equivalent. Provide data from this database and the results of geological assessments made to ORRT meetings so that the team may be fully informed of the nature of the ground into which development roadways are heading. Specifically, the Geologist shall provide data concerning any projected structures so that the Outburst Decision Making Flow Chart () can be used by the ORRT to determine the appropriate sampling strategy.
 - e) Remove projected structures that are deemed to require sampling as specified herein, from the Mine Plan, only after the projected location has been mined through and the structure has been proven to no longer require further projection. Structures, once projected on the Mine Plan and deemed to require sampling as per the provisions specified in this Plan, cannot be removed solely on the basis of not being detected by drilling.

The Mine Surveyor shall examine the Drill Log Summary Sheet for each in-seam borehole drilled within Colliery for the purpose of exploration, structure prediction core sampling or gas drainage and plot any anomalies recorded by drillers onto the Surveyors plan, independent of the geological interpretation of that data. Details of all in-seam holes drilled throughout the mine will be recorded on the Mine's Mincom computer by the Mine Surveyor. This data shall consist of:

- hole number and/or name,
- location,
- length,
- direction and
- location and details of any anomaly

The Gas Drainage Engineer shall establish documented standards and assessments for the following areas under his control:

- a) Drilling of in-seam boreholes using each type of drilling apparatus employed at Colliery, including the completion of Drilling Logs for each hole drilled (Gas Drainage Operator handbook).
- b) The means by which gas drainage holes are connected to the gas drainage system (Gas Drainage Operator Handbook).
- c) The monitoring of gas flows from boreholes, maintenance of the gas drainage system to maximise effectiveness and the safe means of clearing a borehole suspected of being blocked ().

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- d) Surveying of boreholes (Gas Drainage Operators Handbook).
 - e) The system by which data recorded in the drilling, monitoring and surveying of boreholes is translated onto mine plans or into some other form able to be utilised by the ORRT at their meetings.
 - f) The means of mining through potentially gassy holes under normal mining conditions. (The Procedure to Mine Safely Through Gas Drainage Holes -).

The Gas Drainage Engineer shall himself, or by way of delegation, read each Drill Log resulting from in-seam boreholes drilled for the purpose of exploration, structure detection, core sampling or gas drainage and shall transfer details of anomalies recorded thereon to the Drill Log Summary Sheet and forward this to the Mine Surveyor for plotting on the Mine Plan and to the Geologist for assessment.

The Gas Drainage Engineer shall, utilising the virgin gas content and seam structure data supplied by the Geologist, plan the pattern of drainage holes to effectively reduce seam gas contents, in the lead times available, to a level which will allow Normal Mining to take place.

The following drilling standards shall be maintained at Colliery as a minimum:

- a) All gas drainage holes shall be drilled according to the Gas Drainage Operator Handbook, post amendments and associated assessments.
- b) The drilling patterns for each area of the mine will be determined by the Gas Drainage Engineer as appropriate to successfully reduce seam gas contents in the available time or to network the proposed drivages on the virgin side. The design of the drilling pattern will take into account the potential for structures to be present on the virgin side of the next development panel. They will be drilled in a manner which will intersect a potential structure. Drilling details of each hole or pattern of holes shall be clearly communicated, in writing, to the drillers specifying maximum hole spacing, minimum hole length and branching details (if appropriate).
- c) Every hole drilled for the purpose of this Plan, shall be surveyed with the exception of supplementary drainage holes which will not be intersected by development workings.
- d) If for any valid reason, holes within a pattern covering a drilage under consideration by the ORRT have not been surveyed, at least double the sampling frequency required by this Plan applied to surveyed holes shall be employed. The Mine Manager must assure himself that the sampling carried out gives him confidence that the gas content of the ground drained by the unsurveyed holes is likely to be represented by the samples taken.
- e) Every hole drilled for the purpose of this Plan shall be logged on Drill Log Sheet/Drill Infusion Report (3141) and to the standards contained within the Operator handbook. Logs will include the following data:
 - date of drilling,

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- colour of cuttings,
 - drilling conditions encountered,
 - number of rods drilled and
 - detail of drilling anomalies (bogging, high gas emission, water loss or emission under pressure, lumps of coal ejected, mylonite etc.).
- f) Gate road development drainage holes shall be designed to extend to a minimum of 20 metres beyond the ribline of the virgin side of the panel which they are designed to serve. If drainage holes fail to cross a minimum of 10 metres on the virgin side rib line a branched and/or supplement hole must be drilled. Main road gas drainage holes will be drilled a minimum of 15 metres ahead of the most inbye planned drivage in that Authorised sequence.
- g) In gate road development drivages, flank holes will not be required if:
- cores in the area are $< 3.5 \text{ m}^3/\text{tonne}$
 - cores in the area are $< 5.0 \text{ m}^3/\text{tonne}$ and $< 20\% \text{ CO}_2$ composition
 - cores in the area are between 5 and $6.5 \text{ m}^3/\text{tonne}$ and the area is intersected by surveyed bore holes no more than 50m apart and has been assessed by the ORRT as not requiring a flankhole.

Where the cores in the area $> 6.5 \text{ m}^3/\text{tonne}$ a flank hole is required. If the ORRT is of the opinion that a flank is not warranted, the reasons for not drilling the flank hole will be tabled at the ORRT meeting and recorded in the minutes.

In areas where there is a known or suspected structure, a flank hole may be required unless deemed unnecessary by ORRT and reasons for not having a flank hole recorded in the minutes. If the structure is classified as outburst prone, a flank hole on the virgin side will be required.

Any flank hole drilled shall be logged and surveyed.

- h) Where for any valid reason, holes in the pattern covering the drivage under consideration by the ORRT have not been surveyed for their full length, a flank hole shall be drilled and will form part of the network. The flank hole shall be not further than 50 metres from the heading centre-line position and shall extend at least 15 metres past the furthest point to which the heading is to be progressed.
- i) No main road development will proceed further than a point which is 50 metres from the surveyed position of an in seam hole unless the main road development panels virgin side C/L is less than 175 metres from old workings and has been assessed by the ORRT.
- j) Main road development panels will be flanked by logged and surveyed gas drainage holes on each side which are never more than 50 metres maximum and 15 metres minimum from the closest roadway and extend at least 25 metres past the intended furthest point of drivage of that sequence. If a flank hole is absent and in the opinion of the O.R.R.T. sufficient holes must have intersected the panel to identify any outburst potential structures, the ORRT

may authorise mining to continue provided the reasons are tabled at the ORRT meeting and recorded in the minutes. Where a panel of greater width than 50 metres but less than 120 metres is driven parallel to old workings (greater than 10 years) only one core sample is required in advance of the panel on the virgin side. The maximum distance between old workings and the virgin side centre line of the panel is to be no greater than 175 metres.

- k) Where primary gas drainage is found by hole monitoring or core sampling and analysis to have been unsuccessful in reducing seam gas contents to below the appropriate Threshold Value, additional time may be allowed and/or additional drilling carried out in accordance with a pattern specified by the Gas Drainage Engineer. In such cases the area to be mined will be re-sampled to determine the gas content remaining after secondary drainage and/or additional lead time has been allowed. Based on the results of this re-sampling, mining will proceed normally or an alternative strategy will be proposed.
- l) All development panels at Colliery when approaching a methane drainage hole will be assessed by the Outburst Risk Review Team. When the panel is going to intersect an in-seam hole which has a potential to be gassy, a safety margin shall be given from the C/L of the cut-through and will be based upon the Procedure to Mine Safely Through Gas Drainage Holes ().
- m) In an area where the 'Authority To Mine' has been issued and an additional stub has to be driven and is less than 15 metres in length, there is no necessity to take further cores, provided the stub is within the network of boreholes, and an approval has been given by the ORRT.
- n) Before the commencement of each new Longwall block an Outburst Risk Review shall be conducted by the Outburst Risk Review Team. The Risk Review is for the potential risk of an outburst occurring during the process of extracting the particular block. An Authority to mine shall be issued for either the whole of the block or a portion thereof.
- o) No core sampling will be deemed necessary when splitting pillars which have been assessed by the Outburst Risk Review Team and which is subject to an Authority to mine.
- p) No core sampling will be deemed necessary when back holing a drivage which has been assessed by the Outburst Risk Review Team and which is subject to an Authority to Mine.

3.3 Prevention

Prevention of outburst during the mining of development roadways is achieved by the success of effective gas drainage in reducing seam gas contents to below the appropriate Threshold value for the composition of the prevailing seam gas.

Monitoring of gas drainage flow rates according to Work Instruction will provide ongoing assessment of progress against expected drainage criteria and will also provide a guideline to be used when determining the "worst position" sampling point in the drainage pattern. However the test of the success or failure of drainage to

lower in-seam gas contents to below Normal Mining Threshold values is determined by sampling. At this time sampling is achieved by obtaining and analysing a core sample(s), however should other methodologies, more indicative of in-situ conditions, be developed and approved for use, these may be accessed as well.

The ORRT is responsible for determining the sampling requirements of the next coal to be mined by each development unit and longwall and the Gas Drainage Engineer is responsible to see that these samples are taken and analysed by a DMR approved laboratory and the results available to the ORRT when it is ready to complete the Authority to Mine process. The frequency and location of the samples to be obtained is determined by the predictive data assembled and assessed by the ORRT at its meetings. Sampling will be determined based on whether or not a structure is known

or suspected to exist, the nature of the structure and the degree of certainty attached to its location. Sampling strategies are different for each of these scenarios and are detailed in the minimum standards to apply. The basic principle to be applied at all times is that the ORRT must be in no doubt that the sample(s) taken are conservatively representative of the area to be mined.

The Gas Drainage Engineer shall be responsible for developing a Work Instruction relating to “Underground Core Sample Collection” (). Core samples shall be taken ahead of the workings and initial desorption tests conducted by trained operators and according to the provisions of this Work Instruction to determine gas content and composition. Results of logging of core sample holes and initial desorption results shall be recorded on - “Gas Content Sample Collection Report”. The Gas Drainage Engineer shall arrange for the samples to be sent to an accredited laboratory for further analysis to AS 3980 or an equivalent standard approved by the Department of Mineral Resources (DMR).

The results obtained shall be compared by the ORRT to the Seam Gas Threshold values, approved by the DMR and contained within, to determine if mining will be carried out.

The minimum standards to apply at Mine relating to sampling and gas drainage are :

- a) No mining will take place in any panel unless there is at least one core sample result available ahead of the proposed panel drivages and this core position should be designed to be in the “worst position” in the drainage pattern.
- b) Any such sample must indicate a gas content below the threshold value appropriate for the gas composition of the coal as determined by analysis in order that the Authority to Mine be given. The approved laboratory conducting the analysis shall record the content and composition results on the Total Gas Content Report form ().
- c) A core(s) shall be maintained a minimum of 5 metres ahead of the face in the direction of panel advance.
- d) All holes drilled for the purpose of core sampling shall be surveyed according to the standards contained within Gas Drainage Operators Handbook, to determine the position of the core sample relative to the current

and projected heading positions and the location of the core sample recorded on the Mincom computer (directory /usr/projects/ /designs/ch4_drainage in group “Cores”.

- e) Additional coring may be required to be conducted by the ORRT in consideration of factors such as presence of structures, “worst position” sampling and the results and location of initial core samples in accordance with.
- f) In the direction of panel advance, the maximum distance between the working face and the next core sample shall be:
 - Never more than 150m irrespective of gas composition where the seam gas content is less than or equal to 3.5 m³/tonne and has been assessed to have no outburst potential by the Outburst Risk Review Team.
 - Never more than 20 metres, where the seam gas contains greater than 20% CO₂ and the content is above 3.5 m³/tonne.
- a) Across the panel width core sample frequency shall be:
 - A minimum of one sample maintained ahead of the advancing panel where the panel width is 50 metres or less measured from the centre lines of the inside and outside headings. The core will sample, as closely as possible, the “worst position” in the drainage hole pattern.
 - A minimum of two samples maintained ahead of the advancing panel where the panel width exceeds 50 metres but is less than 100 metres measured between the centre lines of the inside and outside headings.
 - A minimum of three samples maintained ahead of the advancing panel where the panel width is 120 metres or greater, measured between the centre lines of the inside and outside headings.
 - For panels of greater than 50 metres width, unless otherwise specified by the ORRT, one sample shall flank the panel on each side and the third sample (if necessary) shall be in a central location at the widest point between drainage holes in the area to be represented by the samples.
 - Where a panel is back holing and the drivage(s) are subject to a current Authority to Mine, no cores are required if the distance is less than 150 metres.
- (h) Sampling in the vicinity of structures will be specific to each structure or projected structure to be crossed by each heading and shall be subject to the following provisions and the Outburst Decision Making Flowchart A-CM-FL-001 developed by Colliery. The strategy is based on the principle that all projected development headings are assumed to be at risk of an outburst occurring until definitive information to the contrary is confirmed by the

ORRT and this principle applies especially in cases where structures are present or suspected to be present.

- (i) Where a structure is known or projected to cross the panel workings or where the Geologist interprets drill log information to indicate the presence of a previously unknown structure, the Geologist shall provide the ORRT with all current knowledge and geological interpretation pertaining to that structure. The Gas Drainage Engineer shall provide all data relevant to the drainage applied to the structure. This information shall be as required by the Outburst Decision Making Flowchart A-CM-FL-001 which accompanies the OMP Check sheet of Gas Drainage and Geological Conditions (Form). This flowchart enables an objective assessment of the outburst potential of any structure and the sampling strategy to be adopted relating to that particular structure. It enables the ORRT to be fully informed of the nature of the ground immediately adjacent to the structure or projected structure prior to authorising mining. Independent of any other sampling required to be carried out by this Plan, this assessment and the resultant sampling shall be undertaken for each roadway to cross the structure.
- (j) All decisions of the ORRT relating to the sampling of structures shall be minuted. The team may specify sampling in excess of that required by this flowchart but shall not undertake sampling of any less frequency than that specified.
- (k) On the completion of a favourable assessment, the O.M.P. check sheet is to be completed by the Gas Drainage Engineer and Geologist.
- (l) All holes drilled for the purpose of gas drainage shall, on completion, be coupled to the gas drainage pipe range and suction applied as per the standards set out in the Gas Drainage Operator Handbook.

3.4 Authority to Mine

The prediction and prevention provisions are designed to develop a clear picture of the conditions prevailing ahead of development panels and to reduce the seam gas content to below the threshold value corresponding to the seam gas composition prevailing in that area. The data generated as a result of these provisions represents the input into the Authorisation to Mine process.

The method of working will be decided for each set of circumstances by using A-CM-FL-001 - "Outburst Decision Making Flowchart". Meetings of the ORRT to carry out this process will be held as often as is necessary to maintain the Authorisation to Mine process, but in no case less often than once in each month. Records of all meetings and decisions reached shall be kept in the form of the Authority to Mine paperwork generated including and details of other business discussed eg: core sample planning, decisions with regard to the outburst potential of structures and the need to apply the sampling provisions of The Plan etc.

The Authority to Mine shall be co-authorised by the Mine Manager, Undermanager-In-Charge and the Gas Drainage Engineer.

Once the Authority to Mine has been completed and signed off, it shall be the responsibility of the UMIC to ensure that a copy of the new Authority to Mine replaces the previous copy in the:

- Panel Outburst Folder
- Outburst Review Notice Board
- Undermanagers' Report Room Notice Boards

The original of each Authority to Mine shall be lodged with the Gas Drainage Engineer for filing.

No mining will be carried out in any development or longwall panel except in accordance with the current Authority to Mine.

3.5 Normal, Outburst and Other Mining Methodologies

No mining is to take place in any development or longwall panel unless an Authority to Mine has been issued on Form covering the area to be mined. The success of the prediction and prevention provision in place at Colliery will enable mining to be carried out under Normal Mining Conditions. The failure of these provisions will result in additional drilling and/or drainage time.

Normal Mining procedures are covered by, which includes:

- panel design provisions;
- first response rescue equipment which must remain on hand in the panel at all times (including location, inspection and maintenance details); and
- change detection and outburst warning signs and the authorities and responsibilities to be exercised and procedure to be followed if these are encountered unexpectedly. Development and longwall panel personnel shall be trained to recognise the warning signs which indicate outburst potential.

Where any person detects an unexpected, abnormal change in the mining environment, which may indicate the risk of an outburst occurring, they shall ensure that production is stopped until an investigation is conducted. The deputy shall immediately notify the Shift Undermanager if he acknowledges an unexpected, abnormal change in the mining environment.

The Shift Undermanager shall immediately investigate all reports of an unexpected, abnormal change in the mining environment. If, in his opinion, there exists an unexpected, abnormal change in the mining environment which may indicate the risk of an outburst occurring he shall ensure that production remains stopped until an investigation is conducted by members of the Outburst Risk Review Team. The panel Deputy will record details of any such anomaly detected in this statutory report and notify the Shift Undermanager. The Shift Undermanager will record details of the anomaly detected in this Shift Report (along with the results of the investigation when these are known) and will notify the appropriate Senior Mining Official to initiate the investigation.

Any of the following signs may (particularly if in combination with other signs) be indicative of outburst potential:

- Presence of mylonite zones
- Sudden deterioration of roof or rib conditions
- Reddish or brownish tinge on the face or surrounding strata
- Intersection of a structure including faults or dyke
- Presence of slickensides in the roof or coal
- Significant change in direction or intensity of jointing
- Abnormal hardening or softening of face and/or ribs

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- Abnormal gas composition detected

It is not the intent of Colliery Management that any area of the mine should be developed under Outburst Conditions and the ability to mine above outburst mining thresholds by fully remote means is not considered to be a viable alternative. However, where it is proven that an area of the mine is unable to be drained to below the Normal Mining gas threshold level and additional drilling and drainage have proven ineffective, mining shall only take place after a full risk assessment has been completed by the Outburst Risk Review Team and other relevant parties, and associated controls required have been identified and put in place.

3.6 Precautionary Measures Taken Around Boreholes Drilled from Colliery into the Lease (406 and 407 Panels)

A Process Hazard Analysis was carried out before the commencement of any drilling into's lease. Mining will then be carried out under normal conditions in compliance with the Outburst Management Plan and have additional controls listed below:

- and Mine Managers and Superintendent / to review the original Risk Assessment and conditions of approval (filed under Approvals General 6.6.2) and complete the 'sign off' process prior to mining within the "Safety Zone" of the first long hole drilled from
- Review Procedure to Mine Safely Through Methane Holes (). Assessment will be made to ascertain if the hole is **gassy** (hole to be intersected with a drill hole) or **non-gassy** (indicated safety zone and normal mining carried out). Safety Zone to be indicated on Authority to Mine.
- Coring to be carried out as required by the Outburst Management Plan during the drilling of the in-fill holes for earliest possible indication of gas contents and compositions. Coring and water infusion holes will be drilled by Colliery. If coring results are not consistent with expected results (taking into account lead times and gas flows), additional holes to be drilled.
- Routine monitoring of longholes (weekly for first four weeks, fortnightly for the remainder of the hole life). Analysis and charting of results to be forwarded to the Gas Drainage Department and tabled at the Outburst Risk Review Meetings. Before intersection of the first longhole, the hole is to be pierced to verify all relevant data supplied by.
- Assessment to be made on potential impact to or Exhauster plants on holing of borehole.
- Outburst Risk Review Team to review longhole intersection procedure. During the drivage of 406 and 407 maingate the first longhole to be encountered by mining will have it's location verified by intersecting the hole with a proram (as per).
- If the Outburst Risk Review Team deems borehole flows are inconsistent or cores in the area indicate the are is not drained, or there are any inconsistencies that may indicate a blocked borehole, Colliery longholes shall be re-drilled prior to the Authority to Mine being issued. The Outburst Risk Review Team shall then review all the actions taken.
- The Outburst Risk Review Team meeting which relates to intersection of the first of the boreholes, shall have a representative from the Methane Drainage Department in attendance with all relevant data pertaining to the drilling, maintenance and hole flow readings.
- The and surveyors are to ensure the longholes drilled from are plotted in the correct position on the Colliery Mine Plan.

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- longholes are to remain on suction and sealed after intersection with gas bags. Position of intersected holes to be recorded and repositioned on the Mine Plan by the mine surveyor.

3.7 First Response Rescue Equipment

First Response Rescue equipment is required in each development panel at all times to allow crew members to escape to a place of safety and/or effect a rescue of trapped or incapacitated operators in the event of an unsuspected outburst.

The requirements for the location and content of panel first response pods when mining under Normal Mining Conditions are detailed in.

The procedures for the inspection, use and maintenance of Escape Equipment (Chemical Oxygen Self-Contained Closed Circuit Escape Breathing Apparatus) are defined in and.

The procedures for the inspection, use and maintenance of Rescue Equipment (Sabre Centurions) are defined in and.

3.8 Outburst Data Collection

Any outbursts occurring at the mine will be investigated and recorded in accordance with the provisions of CMRA 1982, Notification and Investigation of Accidents and Dangerous Occurrences - Underground Mines Regulation 1999 Cl. 34 and MDG 1004 Guidelines.

The Mine Manager shall lead the investigation, which shall receive input from each member of the ORRT, and shall make his report on form including the following information:

- Name of any persons killed or injured,
- Names of all Mining Officials having responsibility under the CMRA 1982 for the panel at the time of the outburst,
- Gas monitoring and testing details of the panel for a period of at least 24 hours prior to the outburst,
- Geological details of the area,
- Estimated quantity of coal ejected,
- Gas drainage, gas parameters and borehole details for the area,
- Method of working at the time of the outburst,
- Witness statements, in the words of the witness, in particular of their location and activities, with special emphasis on warning signs and conditions encountered at the face prior to the outburst.

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- A plan of scale not less than 1:4000 of the area showing:
 - drivage sequence,
 - gas drainage holes,
 - auxiliary fan location and other ventilation details,
 - other mining equipment location,
 - Emergency Equipment Station location and
 - geological details including structures, roof type, floor and roof rolls etc.

 - Recommendations aimed at preventing a recurrence (these to be reviewed and agreed by the General Mine Manager).

Appended to this report will be a report from the Geologist detailing the precise nature of the circumstances concerning the outburst with particular reference to the structure(s) involved.

4. TRAINING

A Training Plan shall be developed by the Safety and Training Superintendent which details and schedules the minimum general training requirements relating to outburst for each underground employee and the more specific outburst training requirements applicable to personnel who carry out designated development and gas drainage related tasks.

Training modules or the equivalent (including assessments and the minimum standards to be achieved) shall be developed by the Safety and Training Superintendent in the following areas, shall include the content and be applied according to the frequencies specified:

4.1 Outburst Awareness

The content of this module shall include an introduction and basic explanation of the mechanism of outburst, the structure of The Plan and how it is designed to predict and prevent outbursts, escape and first response rescue principles and procedures and the use of Oxygen Self Rescuer and Sabre equipment.

It shall be applied to all personnel who may, at any time, be required to pass through or work in a Development panel at Mine and refresher training shall be provided in this module each twelve (12) months.

4.2 Normal Mining Provisions

This module shall be based on the content of “Normal Mining”.

It shall be applied to any new employee in the first instance and re-assessment of all development personnel will be made every 12 months. Failure to meet the minimum standard required by that assessment shall result in the employee being re-trained.

4.3 Duties and Responsibilities of Officials

The content of this module shall be an explanation of the outburst related duties and responsibilities of Officials who have roles defined by The Plan.

It shall be applied to any new official in the first instance and re-assessment made of each incumbent at the time following an audit and review of The Plan. Failure to meet the minimum standard required by that assessment will result in re-training of that official.

4.4 Gas Drainage Tasks

Modules shall be developed covering the following Gas Drainage related tasks and the content in each case will be based on the relevant Work Instruction developed by the Gas Drainage Engineer.

- Drill Rig Operator (covering the set up, operating, structure recognition and logging requirements for each type of drill rig used at Colliery).
- Downhole Motor Rig Operator.
- Core Sampling (including initial gas desorption techniques).
- Surveying of Inseam Boreholes by non DDM Methods.
- Connection of Inseam Holes to the Gas Drainage System, Monitoring and Maintenance.

These shall be applied to all Gas Drainage personnel upon the recommendation of the Gas Drainage Engineer in the first instance and be the subject of re-assessment on a 12 monthly basis for employees that have not carried out that task for a period

in excess of 12 months. Failure to meet the minimum standard required by the assessment will result in the employee being re-trained.

The Safety and Training Superintendent shall maintain records of all training and assessments carried out on each employee as required by this Plan and shall advise the UMIC or the Gas Drainage Engineer (as appropriate) when personnel under their control are within one month of requiring refresher training or re-assessment.

The Safety and Training Superintendent shall ensure that all training and assessments are conducted to documented standards by nationally accredited and assessors.

5. RESOURCES REQUIRED

The corporate OH & S policy contains a commitment to provide resources sufficient to enable this Plan (as part of the Mine Safety Management System) to be effected.

Personnel necessary to manage and effect the Outburst Prediction and Prevention provisions of this Plan are specified in Section 6 along with their detailed responsibilities.

Specific equipment necessary to enable this Plan to be put into effect include, but are not limited to:

- Sufficient and adequate drilling equipment to drill the drainage holes required by the Plan, safely and without risk of gas inundation as part of this process.
- Pumps and pipe ranges of a capacity to provide adequate suction at the site of all drilling and drainage operations.
- Survey equipment capable of determining the location of a borehole to an acceptable degree of accuracy.
- Hoses, valves and any other equipment necessary to effect a connection of each hole drilled to the gas drainage system that does not adversely impact on the drainage potential of that hole.
- Materials to line holes drilled down dip to overcome the adverse effects of water or where holes are drilled through structures that adversely affect the integrity of the hole.
- Adequate monitoring equipment to protect drilling operators from gas leakages and to give early warning of problems associated with damage to the drainage system or loss of suction.
- Facilities to take core samples and to have them accurately analysed for gas content and composition.
- Suitable computer facilities and software to enable adequate drainage design, assessment of drainage success and record keeping.

- First response rescue equipment and escape equipment as specified within the Plan to allow personnel to escape to a place of safety or effect a rescue of trapped personnel in the event of an outburst.

6. ROLES AND RESPONSIBILITIES

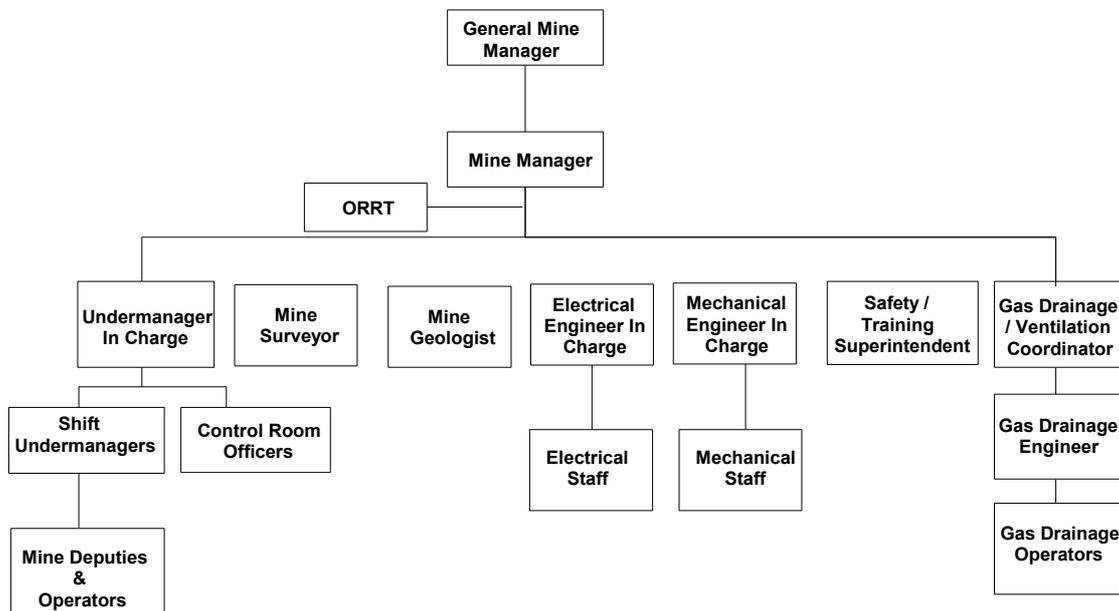
6.1 Organisation

The responsibilities under The Plan of each individual position shown on the Outburst Organisation Structure (Figure 2), as well as the ORRT are listed below.

Where any person having responsibilities under The Plan is unavoidably absent, those responsibilities shall be borne by that person's corporate supervisor unless it is formally delegated, in writing and for a defined period, to another appropriately qualified person.

That person's qualifications and experience should be such as, in the opinion of the Mine Manager, to enable him to effectively carry out his delegated duties under The Plan.

Figure 2 - Outburst Organisational Structure



6.2 Outburst Risk Review Team

- Meet as often as is necessary to maintain the continuity of the Authority to Mine process, but in any case, at intervals not exceeding 1 month.
- Source and evaluate, for each Development Production District and Longwall Block, all geological, drilling and gas drainage information required by The Plan to be assessed, to determine the outburst potential of the drivage(s) to be undertaken and the longwall block to be extracted.

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- On the basis of this evaluation, complete the Outburst Management Plan Checksheet - Gas Drainage and Geotechnical Conditions () and complete the Authority to Mine documents (), deciding on the method of working each area using the Outburst Decision Making Flowchart (A-CM-FL-001).
 - Review the results of mining carried out under the previous Authority to Mine as well as geological mg undertaken and discuss and keep a record of unusual circumstances, particularly where structures were encountered which were not predicted by drilling or other means.
 - Review the effectiveness of gas drainage in the areas to be mined by assessing monitoring results and core sample gas content and composition analyses. Develop the core sampling program for the following period ensuring core samples are taken ahead of every Development panel and Longwall to the standard and frequency defined by The Plan.
 - Determine the extent and nature of sampling to be conducted in the vicinity of known or suspected structures using the Outburst Decision Making Flowchart (A-CM-FL-001).
 - Where an area of the mine has proved to be unable to be drained below the normal mining threshold, the ORRT will conduct a Risk Review to determine the appropriate manner of mining the area.
 - Refer the basis for any decision to mine an area by a method other than Normal Mining to the General Mine Manager for review and agreement.
 - Conduct the 2 yearly Review of The Plan and make recommendations regarding modifications and amendments required.
 - The inrush potential for an area will be considered at each Outburst Risk Review Team meeting. At those meetings the Authority to Mine will only be used if the inrush potential has also been assess as safe to mine.

6.3 General Mine Manager

- Determine Outburst Management policy for Colliery, sign the Policy Statement and agree to modifications and amendments to be made to The Plan as a result of Annual Reviews.
- Review and agree any decision of the ORRT to mine any development panel by any means other than Normal Mining.
- Review the results of any External Audit carried out.

6.4 Mine Manager

- Oversee the development, registration, review and operation of The Plan.
- Cause systems and procedures to be documented and implemented in accordance with the requirements of The Plan.
- Ensure facilities exist and a system is in place for training to be provided according to the requirements of The Plan.
- Ensure that all Colliery officials understand their responsibilities as stated in the Plan and that all Development and Longwall Operators and Deputies undergo training at the required frequency.
- Lead the ORRT meetings and co-authorise each Authority to Mine.
- Take disciplinary action against any employee who willingly or knowingly fails to comply with the requirements of The Plan.
- Arrange the required inspection of a panel which has suspended production due to outburst warning signs being encountered.
- Ensure the Corrective Action Request procedure operates effectively.
- Authorise recommended changes in The Plan.
- Ensure the inrush potential is considered and evaluated at each meeting of the Outburst Risk Review Team.

6.5 Undermanager-in-Charge (UMIC)

- Implement, in practice, The Plan's systems and procedures.
- Ensure personnel under his control remain aware of their responsibilities under The Plan and carry them out.
- Bring to the attention of the Mine Manager and Geologist any matter of which he becomes aware which indicates to him that an increased outburst risk exists.
- Accompany the Mine Manager and Geologist on an inspection of a panel which has suspended production due to outburst warning signs or lead such an inspection in the absence of the Mine Manager.

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- Participate in ORRT meeting.
 - Co-authorise the Authority to Mine.

6.6 Development Coordinator

- Participate in ORRT meeting.
- Ensure personnel under his control remain aware of their responsibilities under The Plan and carry them out.
- Bring to the attention of the Mine Manager, UMIC and Geologist any matter of which he becomes aware which indicates to him that an increased outburst risk exists.
- Ensure all methane drainage equipment is fit for purposes and maintained in a fit for purpose condition.
- Co-authorise the Authority to Mine in the absence of the Undermanager In Charge.

6.7 Gas Drainage/Ventilation Co-ordinator

- Participate in ORRT meetings.
- Ensure that the requirements of the plan as they apply to operators under his control are complied with.
- Ensure that those people under his control, plan and prioritise drilling operations as required by The Plan concerning the drainage of gas, detection or delineation of structures and collection of core samples.
- Arrange for and determine the scope of any External Audit of The Plan or outburst operations generally that may be required to be conducted.
- Ensure all methane drainage equipment is fit for purposes and maintained in a fit for purpose condition.
- Bring to the attention of the Mine Manager, UMIC and Geologist any matter of which he becomes aware which indicates to him that an increased outburst risk exists.
- Co-authorise the Authority to Mine in the absence of the Gas Drainage Engineer.
- Arrange for The Plan to be externally audited and reviewed in accordance with requirements. Non conformances or problem areas to be addressed or rectified.

6.8 Gas Drainage Engineer

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- Gather and record information relating to in-seam drilling operations and anomalies detected, necessary for the ORRT to assess the risk of an outburst occurring particularly as such relate to drainage adjacent to projected structures.
 - Cause core samples to be taken and analysed for gas content and composition in accordance with an approved method and as required by The Plan.
 - Require his drillers to complete the Drill/Infusion Report (3141) each shift.
 - Ensure the Drill Log Summary Sheet () is kept updated.
 - Supply drill log data to Surveyors for update of Mincom
 - Take part in all ORRT meetings.
 - Develop Work Instructions for the critical gas drainage functions and ensure that sufficient operators are trained at any time to carry out the drilling program, collect core samples and survey gas drainage and sampling holes in accordance with Plan requirements.
 - Complete and sign all OMP checklists ().
 - Ensure that any records required to be maintained by this Plan are so maintained for a period of at least two years.
 - Ensure documentation associated with the plan is controlled and distributed as required.
 - Ensure plant and equipment necessary for implementation of the plan is properly maintained.
 - Bring to the attention of the Mine Manager, UMIC, and Geologist any matters of which he becomes aware which indicates to him that an increased outburst risk occurs.
 - In the absence of the Gas Drainage/Ventilation Co-ordinator his duties and responsibilities will be carried out by the Gas Drainage Engineer.
 - Co-authorise the Authority to Mine.

6.9 Mine Surveyor

- Maintain mine plans required to be kept by The Plan (especially the plotting of boreholes, samples and location of any outbursts that may occur).
- Bring to the attention of the Mine Manager any matter of which he becomes aware which indicates to him that an increased outburst risk exists.
- Certify the correctness of all data contained on the Panel Plan attached to each Authority to Mine.

6.10 Mine Geologist

- Maintain geological data base and other associated data required to be kept under the provisions of The Plan.
- Prepare geological and geophysical data relative to current mining areas to enable the ORRT to assess outburst risk in drivages to be undertaken. To enable the ORRT to implement supplementary drilling and/or sampling in a comprehensive but practical manner. The Geologist shall assemble data relating to all structures projected into the mining areas under consideration to determine which need to be the subject of the various levels of sampling required by this Plan. As the mechanism to enable the assessment of outburst potential and degree of sampling to be conducted in a systematic fashion, Colliery shall establish a Structure Sampling Decision Making Protocol as part of the Outburst Decision Making Flowchart (A-CM-FL-001) which the ORRT shall follow for each projected structure.
- Bring to the attention of the Mine Manager or UMIC any matter of which the Geologist becomes aware which indicates to that person that an increased outburst risk exists.
- Accompany the Mine Manager and/or UMIC on an inspection of a panel which has suspended production due to outburst warning signs.
- Take part in all ORRT meetings.
- Complete and sign all OMP Checklists ().
- Provide an interpretation of any reported anomalous drilling conditions especially with regard to their outburst potential.

6.11 Shift Undermanager

- Comply with the requirements of The Plan himself and ensure that systems and procedures established as part of The Plan are followed in practice on his shift.
- Bring to the attention of the Mine Manager or UMIC any matter of which he becomes aware which indicates to him that an increased outburst risk exists.
- Allocate to development units, only personnel who are trained in Outburst Awareness, Oxygen Self Rescuer and CABA techniques.
- Read and understand the current Authority to Mine for each Development Production District and Longwall District.
- Notify the Mine Manager and/or the UMIC if, at any time, production has been suspended in any panel due to outburst warning signs being encountered and ensure that mining does not recommence until the required investigation has been conducted and either the current Authority to Mine has been confirmed in writing or a new Authority to Mine issued.

6.12 Development District Deputies

- Read and understand the current Authority to Mine and ensure that no mining takes place except in accordance with that Authority.
- Ensure that panel crew are made familiar with the Authority To Mine at the start of each shift.
- Ensure that no production takes place unless he has the current Authority to Mine on his person or in the Panel Outburst Folder.
- Determine that all mining personnel in his district have been trained in Outburst Awareness, Oxygen Self Rescuer and CABA techniques.
- Determine and report on each production shift that the contents of the First Response pod are in order.
- Record on Production Report Sheet (A-UM-SF-001) any intersections of bore holes and record measurements from the survey station on both rib lines.
- Bring to the attention of the Mine Manager, UMIC or Shift Undermanager any matter of which he becomes aware which indicates to him that an increased outburst risk exists or any boreholes that appear out of position as indicated on the Authority To Mine.
- Suspend production immediately (and support the roof if necessary) if outburst warning signs are encountered and notify the Shift Undermanager. Ensure production is not recommenced until the required inspection has taken place and either the current Authority to Mine has been reconfirmed or a new Authority to Mine has been issued.

6.13 Longwall District Deputies

- Read and understand the current Authority to Mine and ensure that no mining takes place except in accordance with that Authority.
- Ensure that panel crew are made familiar with the Authority To Mine at the start of each shift.
- Ensure that no production takes place unless he has the current Authority to Mine on his person or in the Panel Outburst Folder.
- Determine that all Mining personnel in his district have been trained in Outburst Awareness, Oxygen Self Rescuer and CABA techniques.
- Bring to the attention of the Mine Manager, UMIC or Shift Undermanager any matter of which he becomes aware which indicates to him that an increased outburst risk exists or any boreholes that appear out of position as indicated on the Authority To Mine.
- Suspend production immediately (and support the roof if necessary) if outburst warning signs are encountered and notify the Shift Undermanager. Ensure production is not recommenced until the required inspection has taken place and either the current Authority to Mine has been reconfirmed or a new Authority to Mine has been issued.

6.14 Mine Workers in Production Districts

- Become familiar with the current Authority To Mine
- Comply with the requirements of the current Authority to Mine and any other instruction given under the provisions of The Plan.
- Inform a Mining Official of any matter of which he becomes aware which indicates to him that an increased outburst risk exists.
- Suspend production immediately if outburst warning signs are encountered and notify the District Deputy or other Mining Official.

6.15 Mine Workers involved in Gas Drainage Activities

- Ensure drilling and drainage activities in the Bulli seam are carried out to appropriate standards
- Ensure all drilling logs are filled out accurately with particular reference to ease of drilling, gassiness, bogging, nature of cuttings, mylonite zones, gas surges etc.
- Ensure all holes drilled for the purpose of draining gas are flushed and connected to suction upon completion.
- Ensure rigs are set up as accurately as possible as set out as per instructions.
- Inform a Mining Official of any matter of which he becomes aware which indicates that an increased outburst risk exists.
- Suspend drilling operations immediately in seam gas issuing from a borehole cannot be controlled in the normal manner and notify the district deputy or other mining official.

6.16 Safety/Training Superintendent

- Co-ordinate (re)training and (re)assessment as required by The Plan.
- Develop a comprehensive Training Plan and maintain records of any training and assessment conducted in conformance with The Plan.
- Develop and maintain training modules (and assessments) to enable consistent and standard quality training to be conducted.

6.17 Mechanical and Electrical Engineers in Charge

- Ensure maintenance systems are established and adhered to. Ensure these systems provide for mechanical and electrical equipment that is safe to use and fit for its purpose.

7. AUDIT AND REVIEW PROCESS

7.1 Audit

The Gas Drainage/Ventilation Coordinator shall arrange for an Internal Audit of The Plan and its operation at intervals not exceeding 2 years.

To ensure objectivity, the audit team members shall, as far as is possible, not be responsible for any function within the area being audited. The Mine Manager shall appoint a Team Leader who shall be totally independent of Development, Gas Drainage or Longwall activities at Colliery. The Gas Drainage/Ventilation Coordinator shall co-ordinate the activities of all Internal Audits.

The Audit Team Leader shall ensure that the audit is planned according to the scope and timing required by the Gas Drainage/Ventilation Coordinator, shall elicit input from, at least, the members of the ORRT and, upon completion, shall present a written report to the Gas Drainage/Ventilation Coordinator with a copy to the Mine Manager and discuss the findings of the audit with them.

The Mine Manager shall arrange for an External Audit of The Plan and its operation at intervals not exceeding two years and this External Audit will negate the provision for a Internal Audit for that period. The provisions relating to External Audits are the same as those for Internal Audits except that the Team Leader must be a person totally independent of Colliery operations and this person will report to the Mine Manager instead of the Gas Drainage/Ventilation Coordinator. A copy of his report shall be forwarded to the General Mine Manager so that he may review the results.

The purpose of audits is to confirm that the provisions of The Plan are implemented and operating in practice and to provide feedback on Plan performance as input into the 2 yearly Review process. Non conformances are to be highlighted as corrective actions being required and will be rectified immediately, or where this is not practical, within a clearly specified timeframe.

7.2 Plan Review

Reviews of's Outburst Management Plan shall be initiated by the Mine Manager and, subject to other considerations outlined later, be conducted at intervals not exceeding 2 years, in October and registered in's Document Management System.

The purpose of a review is to assess The Plan's continued suitability and effectiveness in meeting the Objectives stated relating to the minimisation of outburst risk and the facilitation of Normal Mining operations. The review must also ensure that the Plan is subject to continuous improvement and incorporates the most up-to-date practices and the latest testing/prediction methods.

It is essential to each Plan review that a re-assessment of the overall risk to be addressed by The Plan is made each time and that input from Internal and any External audits conducted since the last Plan review is considered. As well, the review will take account of such factors as local experience, results of national and international research and technological innovations and improvements.

A Plan review may be triggered earlier than scheduled by event based factors such as:

- the occurrence of an abnormal or unexpected outburst,
- significant change in mining systems, conditions or equipment,
- improvements in technology or testing or prediction methods,
- major non conformances identified during Plan audits or
- a decision is made to mine coal by a system other than Normal Mining.

Reviews of The Plan shall be conducted by the ORRT, who shall collate input from operators, underground officials, the Safety and Training Superintendent and the Gas Drainage / Ventilation Coordinator. The team's report shall be in the form of recommendations regarding modifications, deletions from and additions to The Plan and be provided to the Mine Manager who shall assess the modified Plan to ensure that it continues to be the tool which best implements Company Policy regarding outbursts. Once agreed, the modifications shall be made to the Plan and communicated and/or distributed to all employees according to the provisions of's Document Control System.

8. PLAN MONITORING AND CORRECTIVE ACTION

Besides the formal means of monitoring Plan performance and continued applicability defined in the Plan Audit and Review sections, every person who has a role defined by the Plan, has a responsibility to monitor Plan performance and to bring to the Mine Manager's attention, any non conformance, deviation or improvement idea of which he may become aware.

In order to facilitate this, Corrective Action can be initiated by any employee by bringing to the attention of the Shift Undermanager or Gas Drainage Engineer any idea for improvement or non conformance of this plan. This shall be achieved by completion of a MIMS Work Request form which will be submitted to the Gas Drainage/Ventilation Coordinator. At every Outburst Risk Review meeting any new improvement, ideas or non conformances that are reported will be tabled and discussed at the Outburst Risk Review meeting.

The Mine Manager will consider the improvement idea or non conformance. Reported non conformances must be investigated, whereas improvement ideas may be agreed to immediately by the Mine Manager, discarded immediately by the Mine Manager for reasons which are recorded on the Outburst Risk Review minutes, or passed onto another person with greater expertise in the area, for further investigation.

The person nominated will conduct the investigation within the time indicated by the Mine Manager, recommend a course of action and report to the Mine Manager and the Outburst Risk Review Team.

If agreed by the Mine Manager the recommendation will be implemented then or at the next Plan Review and if not agreed it will be discarded or referred for further investigation until it is agreed. The outcome of this process will be recorded on the Outburst Review Meeting Minutes.

Any Plan Review or Corrective Action which results in an amendment or addition to Section 3 of The Plan shall result in the training of operational personnel affected by that change.

Any significant change to any section of The Plan shall be the subject of effective communication to all personnel who have a role defined by The Plan.
(Include Stat Reports/Prod Reports, Communication of CA and Chain of Command)

9. COMMUNICATIONS

The Outburst Risk Review Team meeting is the primary forum for decision making concerning drilling, drainage and development panel mining operations. Additionally, Colliery maintains a comprehensive system of forums for communication that will be used, among other things, to regularly review the state of outburst preparedness at the mine, address situations as they arise & maintain up to date knowledge of the outburst phenomenon.

These forums are :

- **Pit top talks.** These are held as a regular form of general communication between management and the workforce on each shift and may include any issues relating to outbursts or the OMP provisions. Where any situation involving outbursts is of a more serious nature, the Undermanager in Charge or even Mine Manager will address each shift on this matter.
- **Shift changeover meetings.** Underground Officials and Control Officers being relieved are required to update the official relieving them as to the current status of any problems encountered during shift.
- **Shift Undermanager updates by Control Officer.** The Control Officer is required to provide the shift Undermanager with all data (including drilling, drainage and development mining information) relevant to the effective operation of his shift.

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- **Tool Box Talks.** Tool box talks are presented by Deputies to their crews on the status of any problems or situations that have been encountered and are in the process of being addressed.
 - **Daily Operational meetings.** This meeting is chaired by the Undermanager in Charge. Any issues involving outburst provisions, drilling, drainage or general development panel operations, of an ongoing nature are addressed at this meeting and the actions designed for correction, accommodated into the daily operational plan.
 - **Weekly Planning Meeting.** This meeting is chaired by the UMIC and considers issues (including those relating to outbursts, or outburst control operations) still outstanding or that have been addressed but require ongoing action including the implementation and formalisation of new measures.
 - **Safety Unit Meeting .** Safety Unit Meetings are a cascading series of meetings which are held both weekly and monthly at all levels of the operation to discuss topical safety issues. From time to time these may include Outburst related safety training topics.

10. RECORD KEEPING AND CONTROL FOR PROCESS RELIABILITY

The Authority to Mine will be available to all appropriate mining officials by being displayed on the Outburst notice board and the Undermanager's Report Room notice board. The Undermanager-In-Charge shall ensure that the current Authority to Mine is placed in the appropriate panel outburst mining folder and superseded copies are removed from the folder and destroyed.

Reports and logs required by The Plan to be kept shall, unless specified otherwise, be retained on file for a period of at least two years by the Gas Drainage Engineer. The Gas Drainage Engineer shall cause a file to be kept for each panel containing copies of:

- drill/infusion reports (3141),
- drill logs summary sheet (),
- total gas content report (),
- gas content summary sheet (),
- Authority to Mine ()
- ORRT meeting minutes.
- OMP, Check Sheet ()
- Gas Content Sample Collection Report ()
- Longhole Drilling Data Sheet ()
- Core Sampling Details ()

It is these records which provide Colliery with the ability to assess and demonstrate the reliability, over time, of all processes designed to allow safe mining of outburst potential areas and to be in a position to continually improve those processes based on objective data.

11. GOODS AND SERVICES ACQUISITION AND CONTROL

The objective of's Outburst Management Plan is to facilitate the mining of all development and longwall panels under Normal Mining conditions by draining the in-situ gas to below the appropriate threshold level. Normal mining activities require no specific or special requirements under the provisions of The Plan other than the provision of Escape and Rescue facilities in the panel at all times. Such equipment is manufactured to Australian Standards and subject to DMR Approval (which is checked as part of the Purchasing/Supply system at Colliery) and the conditions attaching thereto are observed as part of The Plan.

The decision to mine under other than normal mining procedures will be the subject of rigorous scrutiny and review prior to implementation and part of that review will be to ensure that the equipment and any materials used in those operations are best available, comply with all relevant standards and offer the best possible protection to personnel during those operations.

Non- employees, whether contractors, consultants or otherwise, who have a need to work in or pass through development panels, will be subject to at least the same degree of control and instruction as employees performing similar tasks.

12. DOCUMENT MANAGEMENT

The Outburst Management Plan and all associated Procedures and documentation shall be registered as part of's Document Management System and, as such, are subject to the Systems' document and data control procedure () regarding generation, review, revision, distribution and removal of obsolete documentation. The Gas Drainage and Ventilation Co-ordinator will be responsible for maintaining document management standards for the Plan and its associated documentation.

Modifications to the content of the Outburst Management Plan or the Standards and Procedures that are referenced by the Plan may occur as a result of the auditing and review process, the assessment and implementation of a corrective action or as a result of system improvements or modifications. The Mine Manager shall approve all modifications and amendments to the Plan or associated documentation.

The Mine Manager shall delegate, to an appropriately qualified person, the responsibility to document any changes to the Plan, recognising the potential for those changes to affect other aspects of the Plan. The revised copy of the document(s) shall be authorised by the Mine Manager and the Document footer updated accordingly.

The Mine Manager shall determine personnel who are to be advised of amendments to the Outburst Management Plan and its associated Standards and Procedures. The Gas Drainage and Ventilation Co-ordinator shall be the officer responsible for maintaining the list of persons to be advised of documentation amendments.

Communication of amendments to the Plan or associated documents will be in accordance with the Document Management standard procedure in order that all affected employees are advised. Any training of personnel required by amended procedures or otherwise shall be decided by the Mine Manager and Gas Drainage and Ventilation Co-ordinator and actioned by the Safety/Training Superintendent.

13. RESPONSE ACTION PLANS

Responses are required by personnel engaged in development mining activities in the following circumstances :

- Should they note any of the indicators of changed conditions during development mining operations that may indicate that an outburst is imminent. The expected response of all persons under this circumstance is contained in the Normal Mining procedures ().
- Should an unexpected outburst occur and either personnel need to escape to a place of safety wearing escape apparatus or effect a rescue of trapped persons using rescue equipment.

The procedures for the inspection, use and maintenance of Escape Equipment (Fenzies) are defined in and.

The standards for Emergency base equipment, base location, manning levels, inspections and procedures for First Response Rescues when mining under outburst conditions are detailed in A-CM-SP-023.

14. ASSOCIATED DOCUMENTATION AND REFERENCES

14.1 References

- Coal Mines Regulations Act 1982 and the Regulations made thereunder.
- Department of Mineral Resources (NSW) document No. MDG 1004 - Outburst Mining Guidelines (July 1995).
- Occupational Health and Safety Act - 1983 No. 20.
- AS 3980 (1991) - Guide To The Determination Of Desorbable Gas Content Of Coal Seams - Direct Method.
- Colliery Document Control System Procedure ().
- DMR Notice of Specification of C/M Outburst Cabin Standards dated 12/5/94.
- Document S-GM-SP-020 - "Determination of Desorbable Gas Content in Coal Seams".
- Department of Mineral Resources Section 63 Notification dated 11 May 1994.

14.2 Documentation

WORK INSTRUCTIONS AND PROCEDURES

Procedure to Mine Safely Through Gas Drainage Holes

Monitoring and Maintenance of Boreholes

Underground Core Sample Collection and Analysis

Gas Drainage Operator Drilling and Hole Logging Standards Handbook

Single shot survey tool operations

Conduct Downhole Motor Unit operations

Coring tool operations

Carry-out Outburst Management Plan Assessment

Procedures for the Use of Chemical Oxygen SCS

Maintenance of Chemical Oxygen SCS

Use of the Sabre Centurion Breathing Apparatus for Rescue Operations

Checks and Maintenance for the Sabre Centurion Breathing Apparatus

Outburst Decision Making Flowchart

FORMS

Not Registered (Preprinted)

Outburst Risk Review Meeting Agenda

Authority to Mine

Not Registered (Preprinted)

Outburst Management Checksheet - Gas Drainage and Geotechnical Conditions

Drill/Infusion Report (3141)

S-GM-SF021

Drill Log Summary Sheet

Total Gas Content Report Form

Not Registered (Preprinted)

Gas Content Summary Sheet

Outburst Report Form

Gas Content Sample Collection Report

Longhole Drilling Data Sheet

Core Sampling Details

INFORMATION SHEETS

Colliery Outburst Thresholds