



## Work experience advice for ERZC applicants

The Board of Examiners (the Board) must ensure each ERZ Controller application demonstrates the individual has gained the required practical experience and qualifications deeming them eligible for further examination. In some instances, candidates experience has not met the threshold, which has been attributed to lack of Longwall, or Bord and Pillar mining methods established at the site the applicant is employed. In these circumstances the Board requests applicants engage a mentor or trainer from a site that have established these types of operations to provide guidance and experience of a minimum of 10 days. During this time the applicant must be directly involved in the winning of coal at 'the face'. Furthermore, they must develop comprehensive knowledge and understanding of principle methods of coal extraction.

To assist ERZ Controller applicants identify the required proficiencies to control and manage any applicable mining methods they have not previously been exposed, to the Board has compiled the following list of practical applications of the following matters:

### Longwall

#### Strata management:

- Signs of horizontal stress redistribution and abutment loading
- Signs of vertical stress loading on installed support and powered supports
- Signs of localised strata failure and causes
- Signs of floor heave, the causes, and potential risks. (Search internet references to "Newlands case study and chapter 15 Monograph 26")
- Understanding of set pressure and positive set pressure including the impact on powered support capacity
- Identification of performance issues with powered supports
- Identification of cyclic weighting from strata conditions and supports
- Impacts of face alignment
- Understanding of passive and active support
- Monitoring requirements

#### Strata consolidation and stabilisation of failing strata:

- Identification of extreme level strata conditions requiring geotechnical assessment and a recovery plan
- Identification of lower-level strata failures and methods of stabilisation
- System requirements for the use of Polymeric chemicals for consolidation and cavity management
- Double Chocking., minimise tip to face and other practical strategies to stabilise falling strata

#### Gas management:

- Understanding of gas makes and sources that contribute to this
- Local ventilation control devices required to manage gas accumulations/exceedances
- Ventilation impacts on goaf gasses
- Pressure differential impacts on goaf gasses
- Goaf drainage impacts on longwall return concentrations
- Operational matters that impact gas concentrations/ventilation
- Borehole intersection procedures and management

#### Gas monitoring:

- Critical monitoring infrastructure both real time and tube bundle
- Understanding of bag sampling requirements and the criticality of these results including competency in sampling and impacts of poor sampling
- Interpretation of gas chromatograph bag sample results
- Understanding of the limitations with gas monitoring devices including calibration impacts and cross sensitivity

#### Spontaneous combustion:

- Local controls to minimise the risk of spontaneous combustion
- Responsibilities of a Deputy defined in the TARP for this hazard and understanding of these controls
- Conduct and interpret CO make (Where, When, How & Why)
- Interpretation of gas chromatograph bag sample results
- Potential implications of goaf drainage on this hazard
- Preventative and mitigating controls including inertisation
- Seal construction and management
- Monitoring – Tube bundle and bag sampling

#### Outburst:

- Permit to mine requirements for mining and communicating to coal mine workers
- Understanding of threshold values and DRI.
- Identification of Outburst indicators

#### Ventilation:

- Understanding of long wall ventilation principles and impacts on the goaf environment
- Responsibilities for VCD's. In particular; seal construction and seal management
- Use of local ventilation control devices

#### Sealing:

- Understanding of long wall sealing management process
- Application of different TARPs throughout this period and the critical elements
- Understanding and communication of interpretive tools - Ellicott's

#### Operational matters:

- Management of AFC creep
- Powered support management – attitude, alignment, set pressure v load
- Modes of operation, Uni Di, Bi Di, Half web
- Fault and geological anomaly management
- Dust suppression
- Frictional ignition management
- Effective temperature management
- No go zones
- Management of incombustible matter and **explosion barriers**

#### Systems Matters:

- Legislative requirements for development of Second Workings SOP
- Legislative requirements for development of Sealing Management Plans

### Bord and Pillar

#### Strata management:

- Signs of horizontal stress redistribution
- Signs of vertical stress loading on installed support on roof and ribs
- Signs of pillar loading/creep
- Signs of localised strata failure, causes, and stabilisation methods
- Minimisation of risk of strata failure in adverse strata conditions
- Management of multiple working places
- Strata monitoring

#### Ventilation:

- Understanding and effectively applying the principles of flood ventilation
- The use of local ventilation control devices
- The principal and application in the use of scrubber fans
- Minimisation of leakage to workings where extraction has taken place

#### Gas management:

- Minimising the impacts of methane accumulations

#### Spontaneous combustion:

- Local mining controls to minimise the risk of spontaneous combustion
- Responsibilities of a Deputy defined in the TARP for this hazard and understanding of these controls
- Physical indicators of Spontaneous combustion
- Potential implications of partial or full extraction
- Preventative and mitigating controls including inertisation
- Seal construction and management
- Monitoring bag samples and tube bundle

#### Inrush:

- Permit to mine requirements for mining and communicating to coal mine workers
- Identification of Inrush indicators

#### Operational matters:

- Sequence management and interaction hazards
- Modes of operation for first and second workings including cutting sequences
- No go zones
- Fault and geological anomaly management
- Dust suppression
- Frictional ignition
- Management of incombustible matter and explosion barriers
- Impacts of wide excavations

### Gate road development

#### Strata management:

- Signs of horizontal stress redistribution and location
- Signs of vertical stress loading on installed support on roof and ribs
- Signs of localised strata failure, causes, and stabilisation methods
- Minimisation of risk of strata failure in adverse strata conditions
- Management of drivages that are increased in width and or height
- Methods of strata control in adverse TARP conditions
- Strata monitoring

#### Ventilation:

- Understanding and effectively applying the principles of auxiliary ventilation
- Understanding causes and prevention/ rectification of recirculation
- Understanding and applying the processes for degassing.
- The use of local ventilation control devices
- The principal and application in the use of scrubber fans
- Impacts of leakage to the return roadway

#### Gas management:

- Minimising the impacts of methane layering and accumulations
- Understanding of gas makes and sources that contribute to this
- Local ventilation control devices required to manage gas accumulations/exceedances
- Borehole intersection procedures and management

#### Gas monitoring:

- Critical monitoring infrastructure both real time and tube bundle
- Understanding of the limitations with gas monitoring devices including calibration impacts and cross sensitivity

#### Outburst:

- Permit to mine requirements for mining and communicating to coal mine workers
- Understanding of threshold values and DRI.
- Identification of Outburst indicators

#### Inrush:

- Permit to mine requirements for mining and communicating to coal mine workers
- Identification of Inrush indicators

#### Spontaneous combustion:

- Sources and procedures to mitigate this hazard
- Impact of high differential pressure
- Stowage management

#### Operational matters:

- Use of Superpanels and risks
- Sequence management
- No go zones
- Fault and geological anomaly management
- Dust suppression
- Frictional ignition
- Management of incombustible matter and explosion barriers
- Impacts of wide and or high excavations
- Impact of high differential pressure
- Stowage management

## Experience

Each applicant must be able to demonstrate they have completed at least two (2) years directly involved in the winning of coal during operations at the coal face incorporating the following:

- Minimum of 6 months working in a Gateroad development panel
- Minimum of 6 months working in a Mains development panel, or Bord and Pillar development panel
- Minimum of 12 months working in a Longwall extraction panel