

Model Work Health and Safety Regulations for Mining - Public Comment Response Form

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Regulations Chapter 9: Mines	
Part 9.1	
Regulation	Comment
Part 9.2	
Regulation	Comment
Part 9.3	
Regulation	Comment
Other Comments	

Codes of Practice	
Roads and Other Vehicle Operating Areas	
Section/page number	Comment
Managing Naturally Occurring Radioactive Materials in Mining	
Section/page number	Comment
The Mine Records	
Section/page number	Comment

WHS Management Systems in Mining	
Section/page number	Comment
Inundation and Inrush Hazard Management	
Section/page number	Comment
Emergency Response in Australian Mines	
Section/page number	Comment
Strata Control in Underground Coal Mines	
Section/page number	Comment
1.1, p4	Definitions of two types of strata controls are quite ambiguous. They do not specifically refer to mine management control, but only general workforce, mine planners/designers and geotech staff.
1.1, p4	3 components for effective strata control ignore a critical 4 th component – good mining practice.
1.1, p4	Strata movements should not be restricted to elastic strain, but also inelastic strain and rock failure.
2.1, p5	Sources of hazard identification must include – use of appropriate monitoring/instrumentation systems and analysis.
2.1, p5	Bullet point 1 under factors to be considered, should include the overall geotechnical environment (include stress conditions), not just geotechnical properties of the rock. The second bullet point appears to be largely irrelevant to underground strata control and should be deleted.
2.1, p5-6	The list of points commencing at the bottom of p5 does not make any reference to geotechnical conditions (only geological conditions). Geotech must be added to the list to incorporate stress conditions, possibly groundwater; changes in geotechnical rock properties etc.
2.1, p6	Bullet point 3 should state “maximum roadway width and height”, not just width. The reference to “any coal pillar” should be changed to “any system of coal pillars”. Similarly, “pillar’s role” should change to pillar system’s role”.
2.1, p6	Bullet point 9 (recording of strata failures) needs to also include recording of mining activity/proximity at time of failure, and any other conditions considered of relevance to the failure.
3.1, p8	This section should refer to “geological and geotechnical conditions” not just “geological conditions”. The sentence commencing “Underground geological mapping” should include the words “prior to” before “any extraction”.
3.2, p9	3 rd bullet point should include “and rock mass quality assessment” after “logging data”.
3.3, p9	The sentence is confusing – too many uses of the word “effects”.
3.3, p9	It is recommended that there should be a summary statement to suggest the benefit of defining different geotechnical domains across a

3.4, p9	mining lease based on all of above geotech data. This section is titled “Risk Plan” when in fact, using the accepted terminology, it is more correctly referring to a “Hazard Plan” and should then discuss documenting all hazards, rather than risks. It is only a risk plan if it documents likelihood and consequence as well as the underlying hazards. Clearly, as described here, it is not expected to do this, so is definitely a Hazard Plan.
3.6, p10	The section discussing roadway design should include the need to consider the multiple loading cycles that the roadway may be subjected to, as well as just the purpose and life of the roadway.
3.6, p11	The section on TARPS must also include reference to the use of TARPS where improving conditions may permit reduced support density/levels.
3.7, p13	The section discussing periodic weighting refers to “weighting the supports periodically”. This should state “weighting the face and supports periodically”.
3.7, p13	The first paragraph under Longwall Production, discussing the strata control measures, would benefit by including comments to the effect that “other factors include the face length, and also the rate of longwall retreat”.
3.8, p14	The first paragraph under Pillar Extraction Production, discussing the strata control measures, should include comments to the effect that “other factors include the extraction layout and sequence plan and quality of drivage”.
3.8, p15	The section discussing recovery of buried continuous miners should be expanded to also include buried breaker line supports.
3.9, pp15-3.9, p18	Figures 1 and 2 have been extracted from various UNSW publications and the source should be appropriately referenced in the text. Similarly, much of the text in this section is taken directly from UNSW /lecture notes and should be acknowledged. Reference to Pillar Working Load” needs to include explanation that this is a universally accepted colloquial term, when what is actually meant is “average pillar stress”.
3.9, p19	In the section on defining Factor of Safety, the sentence “For this section risk is the instability or failure of a pillar” must be reworded. It should rather say something such as, the risk is a relative measure of the likelihood and consequence of pillar failure occurring.
3.9, p19	The statement of probabilities of failure for different types of failure MUST be qualified. Many factors need to be considered by all stakeholders in determining an acceptable level of risk, using probability and taking into consequence. It is dangerous and inappropriate to state or mandate (eg use of the word “should”) specific values of probability of failure, such as 1 in 100,000 for pillars to protect against flooded workings. In some situations this may not be sufficient. A value of probability of failure can only be determined once an acceptable level of risk has been determined on the basis of the type and role of the pillar system and the consequence of failure.
3.9, p19	It is essential to explain and qualify the reference to the data in Table 1 which links FOS to probability of failure. Firstly, it is essential that such a set of data can only be applied when the strength of pillars has been determined by the UNSW Pillar Design Procedure. If other design systems are used, then different relationships between FOS and probability of failure must be developed and applied. Secondly, this table quotes both linear and power forms of the strength calculation in the UNSW Procedure. In fact, the UNSW researchers then proceeded to recommend only use of the power formulae, so the linear data should not be quoted here, or should be appropriately qualified. Overall, this section almost implies that the UNSW calculations/procedure is the expected method to be used. Whilst it is widely used, it should be made clear that it is just one approach and there are other approaches that may be equally applicable, or even more applicable under some conditions (eg numerical modelling with calibration).
App. A, p21	Definition of abutment would be assisted by also mentioning the related term, abutment stress, being the mining induced stress increment acting on such abutment zones. The reference to strata arching is probably not necessary, and not always appropriate for abutment zones.
App. A, p21	De-stressed zone – this definition is not technically correct. The definition given relates to “post-failure” zones or conditions. A de-stressed

App. A, p21 App. A, p22 App. A, p23 App. A, p23 App. A, p24 App. A, p24	zone may not have failed at all, but simply been subjected to some form of mining-induced tension such that the original load on the rock is now reduced. Definition of Earthquake should note that this term does not normally cover mining induced seismic activity. Inclusion of the term “ravelling” in this strata control document is questioned. Seismology does not just refer to “natural” earthquake events, but also to mining-induced events. Active support is not restricted to forces applied within the rock mass, but may also be applied to the surface of the rock mass, eg longwall powered supports. Passive support is not just applied to the surface. An untensioned bolt anchored/grouted in a borehole is a passive support. The key definition is that the support only provides force to the rock (and hence influences stability) after the rock has deformed. The definition of stress is a bit clumsy and misleading.
Ventilation of Underground Mines	
Section/page number	Comment
Survey and Drafting Directions for Mine Surveyors	
Section/page number	Comment
Health Monitoring	
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Mine Closure	
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Ground Control in Open Pit Mines	
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Ground Control for Underground Mines	
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Underground Winding Systems	
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