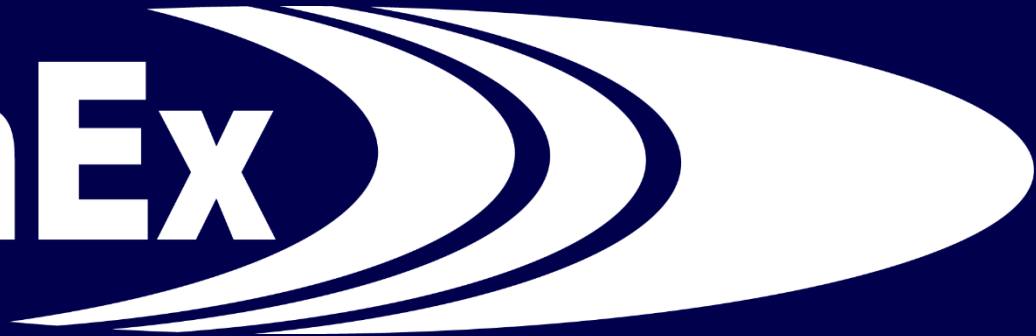


# MinEx



## 2014 AusIMM Events Exploration & the 2013 Regulations

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# Outline


- What sectors of the mining industry are covered by the 2013 changes to the Health & Safety legislation?
- What does this mean for exploration companies?
- The Senior Site Executive role
- Principal hazard concept & application to exploration activities
- Introduction to risk management in the context of the new legislation

# What sectors are covered by the 2013 regulations ?

 **A *Mining operation* is defined under section 19M of the Act**

 It includes:

- Mining for coal & minerals;
- Exploring for coal;
- Tourist mines;
- Tunnels; &
- Various activities associated with these operations.

 It excludes:

- Exploring for minerals;
- Alluvial mining;
- Sea bed mining; &
- Quarrying operations.

# Quarries, alluvials & exploration

- *Part 1 - Safety-critical roles & competency requirements* apply to all mining operations as well as quarry & alluvial operations
- Exploration for coal is defined as being a *mining operation* so companies with coal exploration as their only activity are *Mining Operators*
- Exploration for minerals is excluded – but
- If minerals exploration is via an old underground mine it is covered by the new regulations

# What does this mean for exploration companies?

**As for all mining operations, such activities will require:**

- A Senior Site Executive
- Various notifications to WorkSafe (Part 9 of the Regulations)
- A compliant H&S management system
- To be properly supervised- may require a Certificate of Competency (CoC) holder
- To comply with a number of other matters in the regulations

# The Senior Site Executive

- Appointed by the Mine Operator (reg 7)
- May manage more than 1 mining operation (reg 7)
- Requires a CoC but not until 1 Jan 2016
- Must have been appointed by 1 July 2014
- Appoints other safety critical roles (reg 26 -32)
  - Electrical & Mechanical Superintendent, Mine Surveyor, Ventilation Officer, Underviewer, Deputy, Supervisor & other workers required to hold CoCs
- **Must develop, implement, & maintain the H&SMS (reg 53)**

# The health & safety management system

The primary tasks for the SSE are focused on the Health & Safety Management System & reg 56 sets out what this must contain:



# What does develop, implement, & maintain mean?

- Ensure risk management is part of developing, implementing & maintaining the H&SMS
- Auditing & monitoring the H&SMS (reg 57)
- Reviewing & revising the H&SMS (reg 58 & 59)
- Consulting workers on the H&SMS in preparing & reviewing (reg 60)
- Identifying principal hazards & developing principal hazard management plans - PHMPs(reg 66) & Principal Control Plans – PCP (reg 92)
- If ground instability is a principal hazard ensure a geotechnical assessment is completed (reg 71) & a PHMP prepared
- If inundation & inrush is a principal hazard ensure a PHMP is prepared (reg 73)
- Ensure that the Emergency Management Control Plan is tested, workers trained, training is recorded & Mines Rescue & emergency services have the Plan (reg 106)



# Principal hazards – what are they?


A **Principal Hazard** is any hazard arising at any mining operation that could create a risk of multiple fatalities in a single accident or a series of recurring accidents at the mining operation in relation to any of the following (reg 65):

- Ground or strata instability
- Inundation & inrush of any substance
- Mine shafts & winding systems
- Roads & other vehicle operating areas
- Tips, ponds, & voids
- Air quality
- Fire or explosion
- Explosives
- & anything else that meets the definition

# So what does this mean for coal explorers?

- Firstly determine what hazards are present via a risk appraisal - a hazard ID process
- Are any of these hazards listed in reg 65? If yes then prepare PHMPs for each hazard in accordance with the regulations
- What principal hazards are likely to be present on a drill rig exploring for coal?
  - fire or explosion from methane?
  - fire or explosion from drill rig fuel?
  - any others? Only a risk appraisal with experienced people will answer this question

# Preparing a fire & explosion PHMP

 Regulation 85 tells you what must be considered:

- potential sources of fire & explosion
- potential sources of flammable, combustive, & explosive materials (gas, dust, fuels, solvents, & timber)
- potential sources of ignition (equipment, static electricity, electricity, spontaneous combustion, lightning, hot work)
- potential for propagation of fire or explosion
- the use, presence, & storage of flammable & explosive substances (coal dust, or methane)

 & goes on to define the content of the PHMP

## What else could give rise to a principal hazard?

- If the rig is located in an operating mine or within a public road verge then a vehicle collision would meet the trigger for development of a roads & other vehicle operating areas PHMP
- Regulation 80 sets out in detail what you need in such a PHMP


## Other hazards?

- Hazards other than principal hazards also need to be identified
- Under the new regulations these hazards need to be dealt with in a slightly different way to the way they may have been dealt with in the past (consultation, risk process, documentation).

# Mineral Explorers

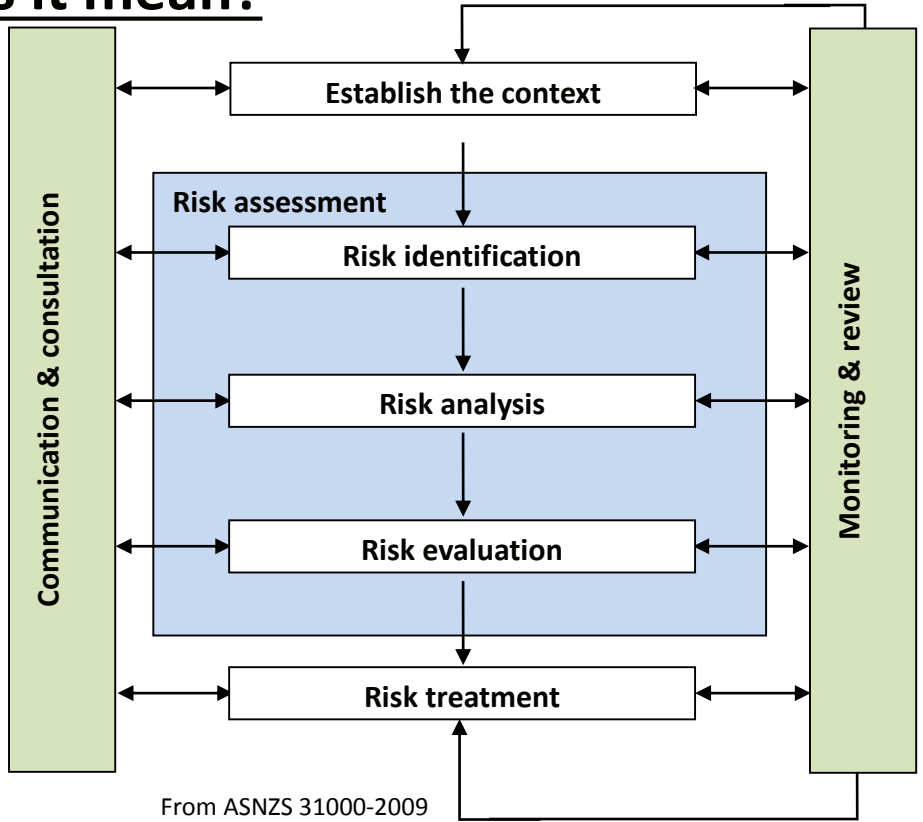
- Minerals explorers entering old workings will almost always result in the need to do work in the old workings which could expose them to:
  - poisonous or explosive gases (methane, carbon monoxide, hydrogen sulphide & sulphur dioxide)
  - lack of oxygen from sulphide oxidation
  - floods & slippery slopes
  - rock falls & roof collapse
  - hard-to-see vertical shafts
  - confusing mazes of tunnels
- Any could be considered Principal Hazards & require PHMPs

# Mineral Explorers & PHMPs

-  The following PHMPs might be required before you can start exploration from old workings
- ground or strata instability
  - mine shafts & winding systems
  - tips, ponds, & voids
  - air quality
  - fire or explosion
  - explosives

# Risk management – what does it mean?

➤ ASNZS 31000 – 2009 is the relevant standard



From ASNZS 31000-2009

# Risk management – what does it mean?

- **Risk appraisal** - defined by reg 54 as the process of identifying hazards
- **Risk identification** - determining the risks that are associated with the hazards
- **Risk analysis** - determining the likelihood & consequences for each risk
- **Risk evaluation** - determining the risk rankings to determine which need treating & with what priority
- **Risk assessment** - identification, analysis & evaluation
- **Risk treatment** - the assessment & selection of appropriate risk controls based on the hierarchy of controls



# Hierarchy of control?

The current Act requires *Elimination*, *Isolation* then *Minimisation* but a more comprehensive approach is:

- *Elimination* - removing the hazard or hazardous work practice from the mine;
- *Substitution* - replacing a hazard or hazardous work practice with a less hazardous one;
- *Isolation* - stopping persons from interacting with the hazard eg guarding, remote handling;
- *Engineering Control* – this may include changes to tools or equipment, providing guarding to machinery or equipment.
- *Administrative Control* - includes introducing work practices that reduce the risk. This could include limiting the amount of time a person is exposed to a particular hazard; and
- *Personal Protective Equipment* - should be considered only when other control measures are not suitable or to increase protection.

# Risk assessment rating

Risk = Likelihood  
 X  
 Consequence

Likelihood	Consequences
A = Common or repeating occurrence	1 = Fatality
B = Known to have occurred – “has happened”	2 = Permanent disability
C = Could occur or “heard of it happening”	3 = Medical/hospital or lost time
D = Not likely to occur	4 = First aid or no lost time
E = Almost impossible	5 = No injury

Risk Assessment Matrix

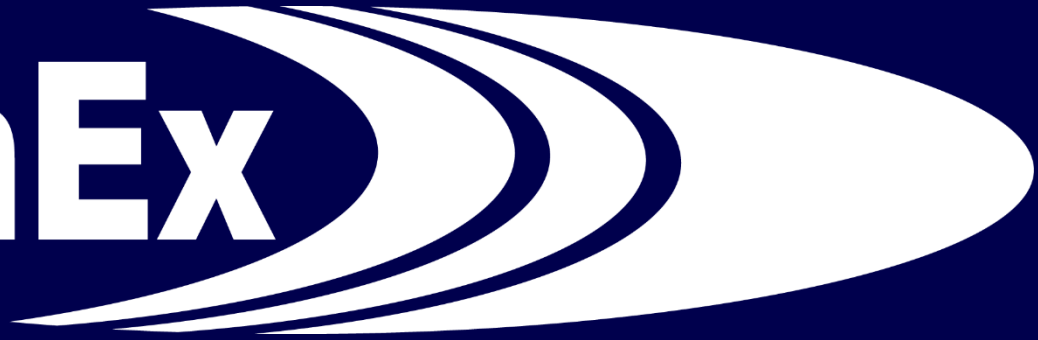
Likelihood \ Consequences	A	B	C	D	E
1	1	2	4	7	11
2	3	5	8	12	16
3	6	9	13	17	20
4	10	14	18	21	23
5	15	19	22	24	25

High Risk	1 – 6
Medium Risk	7 – 15
Low Risk	16 – 25

# Practically what does applying a risk management process to develop a H&SMS mean?

- You need a facilitator who has this skill & experience to managing a risk assessment workshop (unit standard in Managing the Risk Assessment Process)
- It is essential to involve those doing the work in the assessment process
- The outputs from the process are:
  - A list of hazards
  - A list of risks in order of rank
  - A documented process outlining how the task can be performed safely that includes the controls that need to be applied to manage risk which can be reviewed, audited & monitored

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**Questions?**