

New South Wales

**Board of Surveying and Spatial Information**

# **MINING LAW ASSESSMENT**

## **MINING SURVEYING**

### **Surveying and Spatial Information Act 2002**

(Mining Legislation)

Wednesday 27<sup>th</sup> September 2017

**All questions to be answered**

Duration 2 Hours

Pass Mark of 60% Required

1. In accordance with AS 4368-1996, Mine Plans –Preparation and Symbols what colour should electrical cables above 3,300 V be shown?
2. In accordance with AS 4368-1996, Mine Plans –Preparation and Symbols what is the maximum distance grid line spacing that should be shown?
3. In accordance with AS 4368-1996, Mine Plans –Preparation and Symbols how should a gas drainage borehole be shown?
4. In accordance with AS 4368-1996, Mine Plans –Preparation and Symbols how should a surface magazine be shown?
5. In accordance with AS 4368-1996, Mine Plans –Preparation and Symbols how should an open stope be shown?
6. In accordance with AS 4368-1996, Mine Plans –Preparation and Symbols how should an explosion proof stopping be shown?
7. As described by the Work Health and Safety (Mines and Petroleum Sites) Act 2013 what is the meaning of “mine”?
8. As described by the Work Health and Safety (Mines and Petroleum Sites) Act 2013 what is the meaning of “mine operator”?
9. As described by the Work Health and Safety (Mines and Petroleum Sites) Act 2013 what places does the Act apply to?
10. As described by the Work Health and Safety (Mines and Petroleum Sites) Act 2013 name 2 activities to which the Act does not apply?
11. As described by the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 where is a survey plan required and who can prepare it?
12. As described by the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 what datums must the survey plan reference?
13. As described by the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 when must the survey plan be reviewed?
14. As described by the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 when must the survey plan be provided to the regulator?
15. Name 2 objectives of the Surveying and Spatial Information Act 2002
16. Define mining survey as described in the Surveying and Spatial Information Act 2002
17. Define formal survey plan as described in the Surveying and Spatial Information Act 2002

18. The Surveying and Spatial Information Act 2002 states that it is an offence for unregistered persons to carry out mining surveying unless certain supervision conditions are met. What are these conditions?
19. What is the application of the Surveying and Spatial Information Regulation 2017?
20. What are the qualifications for registration as a surveyor as required by the Surveying and Spatial Information Regulation 2017?
21. When is a MOP required as described in ESG3?
22. Who prepares a MOP as described in ESG3?
23. How long can an extension to an existing MOP be granted for as described in ESG3?
24. How often should MOP reports be submitted as described in ESG3?
25. Horizontal Angle observations residuals from mean of any direction within each set for Class D should seldom exceed .....” and should never exceed .....” as described in SP1?
26. As shown in SP1, Table 20 “EDM Height Traversing Equipment Characteristics” what are the total station requirements for Class LD & LE?
27. Describe 2 considerations in network design and geometry that should be taken into account when planning a GPS Survey as described in SP1?
28. How many recovery marks are preferred and to what order surveys are they required as stated in SP1?
29. Name 1 (2d) and 5 (3d) digital themes to be supplied for an underground mine?
30. Name 2 core attribute themes required for both coal and metalliferous mine spatial submission?
31. What is the definition of “control survey” as described in S&DD for Mine Surveyors (2015)?
32. What is the definition of “supervision”, as described in S&DD for Mine Surveyors (2015)?
33. Where should all surveys originate from as described in S&DD for Mine Surveyors (2015)?
34. Name 4 of the 5 surveys for which survey records should be kept at a survey office of the mine as described in S&DD for Mine Surveyors (2015)?

35. State the 4 points as described in S&DD for Mine Surveyors (2015) in regards to Maintenance of Survey Equipment?

Question 2 (10 Marks)

- a. The Work Health and Safety Act 2011 has a number of objectives, name 4 of them
- b. Surveyors are often requested to check the alignment and grades of conveyors.

Outline how you would safely conduct these surveys, including when surveying over two consecutive shifts, with reference to current Work Health and Safety legislative requirements?

Question 3 (10 Marks)

- a. Section 6 of the Mining Act 1992 addresses carrying out designated ancillary mining activities.

List 4 designated ancillary mining activities.

- b. Describe the process and the requirements to have a condition added to a sub-surface mining lease for an ancillary mining activity.

#### Question 4 (10 Marks)

You are the nominated mine surveyor for a company who has recently purchased an existing underground coal mine which has been on care and maintenance for over 5 years. The mine previously extracted coal via longwall methods in seam 'A' and now has a drift down to seam 'B' ready to start developing the main headings for future gate roads. Prior to any development a new ventilation shaft is required. The existing survey marks underground are inadequate to use due to roof deformation. There is a mine baseline on the surface which is 3km from the proposed ventilation shaft.

- a) With reference to the Surveyor General Directions No. 5, outline your considerations and requirements prior to commencing any work.
- b) With reference to ISCM SP1 (Version 1.7) outline the minimally accepted Class, equipment, practices, networks, standards and reduction methods that should be used.

Question 5 (10 Marks)

You are the Nominated Mine Surveyor for an underground coal mine, where roadway development mining will occur in the vicinity of an adjacent mine. The adjacent workings were mined over 25 years ago, and are inaccessible as they are full of water, posing an inrush hazard. The mines have the same operator, and assume any mining/drilling barrier and lease approvals are approved.

- A) Describe the steps you would undertake to conduct an archival research to investigate the location of the workings. (5 marks)

In order to increase confidence in the location of the workings, in-seam boreholes will be drilled to locate the workings.

- B) As described in the S&DD for Mine Surveyors 2015, briefly explain the requirements for the survey of boreholes. (3 marks)
- C) Name one core attribute and one additional attribute for the Adjacent Mine Workings theme. (2 marks)



Question 6 (10 Marks)

An existing underground longwall operation has identified a need for significant volumes of quality road base material to assist it in maintaining its extensive network of internal access roads to an all-weather standard. Geologists have identified a suitable surface resource within the colliery holding, on land held freehold by the company. The proposed location is the site of a very small "borrow pit" developed by the former landholder who was a farmer. Company Executives are interested in exploiting this resource for company purposes for this and the adjacent mine site.

What steps would need to be taken under the Environmental Planning and Assessment Act 1979 to ensure that the company could legally extract material from the proposed quarry. Other than a mining lease covering the applicable group of minerals proposed to be extracted from the quarry, what approvals would be required before extraction could commence?