Mining Management (MINE 4165)

UNIT COMPONENT: MINING LEGISLATION
AND
OCCUPATIONAL HEALTH & SAFETY

UNIT OUTLINE

2010

Lecturer and Examiner: Trevor N Little (TNL Consultants Pty Ltd)
UNIT OUTLINE
MINING LEGISLATION AND
OCCUPATIONAL HEALTH & SAFETY
(PART OF MINE4165)

Semester 2 2010
Points 2

Outcomes: Students gain knowledge of mineral industry legislation and occupational health and safety as applied to the mining industry. Students also develop skills to enable them to communicate effectively not only with engineers but also with colleagues from other professional backgrounds, and develop an understanding of their responsibilities towards occupational health and safety, environment, and community both locally and globally.

Content: Mining Legislation: the Mining Act and the Mine Safety & Inspection Act; duty of care; roles and responsibilities; case histories; environmental (physical and social, Environmental Protection Act) and Native Title issues; occupational health and safety risk based management systems; application to the mineral industry and to mine sites in particular.

Lecture Series Topics

Topic 1 Introduction to the Course, Legislation and Risk
Topic 2 Legislation and Access to Land
Topic 3 Mine Safety & Inspection Act
Topic 4 Mining Safety & Inspection Regulations
Topic 5 Legislation and Mine Safety
Topic 6 Management Systems
Topic 7 Safety Risk Management
Topic 8 Occupational Health Risk Management
Topic 9 Environmental Legislation
Topic 10 Environmental Risk Management
Topic 11 Community and Indigenous Relations
Topic 12 Sustainable Development
Topic 13 Internet and Other Information Resources
LECTURE PROGRAM 2009
A start-up lectures and a final revision lecture will be provided.
Start-up lecture - 4th August 2010 Introduction to Course and Topic 1
Final lecture – 20th October 2010 Overview topics 8-12 and Revision

ASSIGNMENTS 2007
Assignment #1  12% - Lecture Awareness Questions
Assignment #2  18% - Management Systems
Assignment #3  15% - Miscellaneous Topics

ASSESSMENT 2010
Assignments 45%
Examination 55% (2 hour written closed book examination)

Lecturer and Examiner:  Trevor N Little [TNL Consultants Pty Ltd]
Co-Examiner and Unit Co-ordinator: Associate Professor Dr Richard Durham [Civil and Resource Engineering]

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Mining Legislation and Occupational Health & Safety 416

Assignment 1 – Lecture Awareness Questions

Instructions: Answer the following question once you have read or noted the lecture material.

Aim: To ensure that enrollees interact with all the lecture material and to provide a basis for examination revision.

Due date: email to: trevor.little@tnlc.com.au
Topics 1,2,3, 4 by 27th August 2010
Topics 5,6,7,8 by 24th September 2010
Topics 9,10,11,12 by 20th October 2010

Worth: 12% of this component of the Unit (1% per topic)

Topic 1 Introduction to the Course, Legislation and Risk

(1) Define risk using an equation.

(2) Define inherent risk and residual risk.

(3) Distinguish between statute and common law

(4) Explain the role of legislation in risk management terms?

(5) Identify the three different types of organisational culture

(6) List the risk management process steps.

(7) What is a statutory compliance system?

(8) If the hazard is high and the outrage/concern low what is the appropriate risk communication strategy?

(9) If the hazard is low and the outrage/concern high what is the appropriate risk communication strategy?
**Topic 2 Legislation and Access to Land**

(1) What is the title of the state legislation that deals with mining land use?

(2) List the three classes of land open for mining in WA.

(3) List the types of mining tenements in WA.

(4) What conditions does the Government place on mining tenements?

(5) What is the purpose of the Native Title Act 1993 (Cwth).

**Topic 3 Mine Safety & Inspection Act**

(1) Name the different types of inspectors under MSIA 1994.

(2) List four record (log) book required to be used under MSI Act 1994 and Regulations 1995.

(3) List the three boards set up under MSIA 1994.

(4) What do the regulation (MS&I Reg 1995) state about drugs and liquor on mine sites?

(5) What does the Act (MS&I Act 1994) say about the functions of safety and health representatives?
**Topic 4 Mining Safety & Inspection Regulations**

(1) The MSI Regulation are organised into ……….., …………….. and Sections.

(2) In the Table below fill out the Major Controls boxes for Machine and Media.

<table>
<thead>
<tr>
<th>6 Ms Model</th>
<th>Hazards/ Operational Risk</th>
<th>Major Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Man</td>
<td>• Unsafe behaviour</td>
<td>• Induction and training</td>
</tr>
<tr>
<td></td>
<td>• Task related hazards</td>
<td>• Instruction and supervision</td>
</tr>
<tr>
<td></td>
<td>• Manual handling</td>
<td>• Signs and rules</td>
</tr>
<tr>
<td>Machine</td>
<td>• Electricity hazards</td>
<td>•</td>
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<tr>
<td></td>
<td>• Classified plant hazards (boilers, cranes, hoist, lift, pressure vessel)</td>
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<td>• Loading and transport hazards</td>
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<td>• Winder hazards</td>
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<td></td>
<td>• Dredging and railway hazards</td>
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</tr>
<tr>
<td>Materials</td>
<td>• Explosives</td>
<td>• Storage controls, User competency, Transport controls, Firing controls, Signs, Misfire treatments</td>
</tr>
<tr>
<td></td>
<td>• Hazardous substances</td>
<td>• MSDS, containers, labels, disposal of containers, register</td>
</tr>
<tr>
<td>Media (Environment)</td>
<td>• Air contamination</td>
<td>•</td>
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<tr>
<td></td>
<td>• Noise</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Disease</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Access hazards</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Radiation hazards (Part 16)</td>
<td></td>
</tr>
<tr>
<td>Management</td>
<td>• Lack of supervision</td>
<td>• Inspection requirements</td>
</tr>
<tr>
<td></td>
<td>• Lack emergency response</td>
<td>• Certificate of Competency</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Emergency response plan</td>
</tr>
<tr>
<td>Mission</td>
<td>• Remote sites</td>
<td>• Inspection, Lights, Communications, First aid, Rules</td>
</tr>
<tr>
<td></td>
<td>• Working alone</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Shaft sinking hazards</td>
<td></td>
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<tr>
<td></td>
<td>• Night hazards</td>
<td></td>
</tr>
</tbody>
</table>
**Topic 5 Legislation and Mine Safety**

(1) What is meant by general duty? Under the MSI Act 1994 who has a general duty? (research required)

(2) List the different types of legislative standards available.

(3) With regard to compliance the mining sector can be divided into a number of segments. List the these stakeholder groups and their main characteristics.

(4) Draw up the enforcement pyramid.

(5) List five categories of information required under the MSI Act and Regulations?

**Topic 6 Management Systems**

(1) What are the five elements of a Management System?

(2) What is the role of a Corporate Policy?

(3) List five vulnerable times from a Change Management perspective?

(4) What is an Integrated Management Systems and give two different examples.

(5) What is the role of Auditing within a management system?

(6) What does a quality management system attempt to ensure?

**Topic 7 Safety Risk Management**

(1) What are the five levels of Safety Risk Management.

(3) Explain: safe work procedures, planned task observations, and JHAs.

(4) What is a Safety Case Regime?

(5) List and explain the hierarchy of hazard controls?

(6) List the different types of human errors.
**Topic 8  Occupational Health Risk Management**

(1) What is the name of the DMP database for managing mining industry health surveillance information?

(2) What is the name of the DMP database for managing mining industry air contamination system information?

(3) When does a company need a Radiation Management Plan?

(4) List the four classes of health hazards.

(5) List four target organ systems for health risks.

(6) In what way are health risks different to safety risks?

(7) Distinguish between public and occupational health.

**Topic 9  Environmental Legislation**

(1) What is the environmental approvals document for starting a small non-sensitive mine in WA and who administer it?

(2) What is an AER?

(3) What is used by the mining industry to self regulate environmental management?

(4) When is DEC approval, for starting a mine, required under the Environmental Protection Act 1986.

(5) What are the difference levels of formal assessment under the Environmental Protection Act 1986.

(6) What is the EPBC Act 1999 and what are its aims?
**Topic 10  Environmental Risk Management**

(1) What are the main environmental tools used during the exploration phase?

(2) List the seven different scales of environmental planning for mining.

(3) What are the main environmental management tools used during the operations phase of a mining project?

(4) List the three main types of environmental risk assessments.

(5) What are the main environmental issues related to mine closure.

**Topic 11  Community and Indigenous Relations**

(1) What is meant by the term stakeholder?

(2) What is an SIA and what function do they perform?

(3) List the five classes of Cultural heritage elements?

(4) What is the purpose of cross-cultural training?

(5) Explain community relations.

**Topic 12  Sustainable Development**

(1) What are the critical issues for sustainability in Australia for the minerals sector?

(2) What is Sustainability Reporting?

(3) What is meant by the term “Triple Bottom Line”

(4) What is meant by the phrase “Prior, informed consent”

(5) What is the business case for sustainability within mining companies?
Assignment #2  2010 - Mining Legislation and Occupational Health & Safety

Topic:  Management Systems and Safety Case Regime

Lecturer and Assessor: Trevor N Little
Due Date: 24th September 2010 email to: trevor.little@tnlc.com.au
Worth: 18% of this component of the Unit

Part (1): What is a management system and what are the main elements of such a system? Why are they used and how do they relate to company policies (2% of Unit)

Part (2): The Kenner Review of the MSIA 1994 recommends that all major hazards be controlled by a Major Hazard Management Plan that incorporate TARPs. Explain what these plans are and how they are designed to be used? (2 x 4 = 8% of Unit)

Part (3): Consider that you, as a graduate engineer, have been given the following task, to “Assist the Corporate Health & Safety Manager to research and develop a voluntary Safety Case for a new underground mine”. Your answer should include:

- The advantage and disadvantages of a Safety Case Regime for mining operations.
- What are the main steps involved in the process.
- What stakeholder consultation would be required throughout the process.

Requirements part (3): No more than 6 pages including diagrams. (8% of Unit)
Assignment #3 2009 Miscellaneous Topics

Instructions: Write answers to the following three questions in your own words. List all references.

Due Date: 15th October 2010 email to: trevor.little@tnlc.com.au

Worth: 15% of this component of the Unit

Aim: To make students aware of three current issues (legislative reviews sustainability assessment, risk communication and project approvals) relating to mining legislation and occupational health and safety.

Question (1) In the MS&I Act 1994 three notices are legislated. Demonstrate your understanding of these notices (INs, PNs and PINs) by filling out the following table:

<table>
<thead>
<tr>
<th></th>
<th>Who can issue it</th>
<th>What is it issued for</th>
<th>What must the Manager do (to not include review)</th>
<th>What happens if Manager requests Notice be reviewed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improvement Notice (IN)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prohibition Notice (PN)</td>
<td></td>
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<tr>
<td>Provisional Improvement Notice (PIN)</td>
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</tbody>
</table>

The legislation can be viewed on the State Law Publisher website  [www.slp.wa.gov.au](http://www.slp.wa.gov.au) (Maximum 4 pages – 5% of Unit).

Question (2) Discuss Sustainability Development in relation to the minerals sector using the following three issues: sustainability business case (1 page), sustainability assessment (1 page), and sustainability indicators (1 page). Put these three aspects and any others relevant aspect you find into a schematic diagram (1 page) (Maximum 4 pages – 5% of Unit).

Question (3) What licences are required to store and use explosives and AN on a mine site in WA. (Hint info from Dangerous Good Safety legislation – 5% of Unit).