GUIDELINE 6

Guidelines for Chartered Professional (Geotechnical Engineering) - (Mining)

1. Introduction

This document provides the criteria that will be used for assessing applicants for Chartered Professional status conferred by The Australasian Institute of Mining and Metallurgy in the general area of Geotechnical Engineering (Mining) practice within the minerals industry.

A Geotechnical Engineering (Mining) professional investigates plans, designs and monitors the process of creating fit-for-purpose mining excavations associated with the surface or underground excavation of an in-situ rock mass, or matters directly associated therewith, including the construction or excavation of in-pit or underground infrastructure, the construction of waste dumps and stockpiles and the placement of backfill. This discipline does not include geotechnical investigation and design for the construction of civil infrastructure on a mine site, specifically including access roads and rail lines, foundations for the construction of buildings and processing facilities, or tailings dams. The discipline also does not cover civil tunneling or civil underground storage.

2. Criteria for Eligibility for Registration as a Chartered Professional in the Geotechnical Engineering (Mining) Discipline

- Geotechnical engineering must be the applicant's main technical discipline and only in exceptional circumstances would the applicant not have qualifications in geotechnical engineering, which are, were or would be sufficient to allow admission to Corporate Membership of The AusIMM. For the avoidance of doubt, geotechnical engineering qualifications include a Bachelor's degree in science or engineering relevant to the geotechnical field, or a Masters degree in geotechnical engineering (rock mechanics, etc) combined with a geology degree or engineering degree, or a geology/engineering degree followed by course work and experience under geotechnical supervision.
- The applicant will have accumulated five years of technical experience in any one of, or a combination of, the first four specialist areas of mining practice as those listed in Section 3
- For holders of diplomas or equivalent only, there will be a need to demonstrate significant additional levels of experience and mentoring by recognised geotechnical engineers or engineering geologists over and above the five year minimum.
- Applicants will be required to certify that on gaining CP accreditation, they will maintain a satisfactory level of relevant professional development (PD). Except in specific extraordinary circumstances, they will be required to certify also that they have maintained a satisfactory level of relevant PD during the three years prior to their application for CP.

3. Areas of Practice and Experience

The following lists are examples of the type and level of experience and competence generally required for registration as a Chartered Professional (Geotechnical Engineering). The list is representative rather than exhaustive or comprehensive and applications will be considered for areas of practice outside those listed below.

Site characterisation

- Enhanced proficiency in mine mapping skills with the ability to identify and focus on important aspects of the geotechnical regime
- ability to finalise sectional interpretations
- ability to integrate geotechnical data into a field work component, eg sections, plans, etc
- plan and supervise data acquisition, interpret the data and report
- ability to recognise and interpret the significance of lithological units, alteration and structural in the field
- ability to review, identify and design drill hole programs
- ability to manage daily drilling activities and daily supervision of contractors
- compile databases and reports on rock mass parameters
- ability to plan, implement and manage field projects.

Geotechnical analysis and design

- Develop a model of the major geologic structures and geotechnical features of the mine
- determine the geotechnical domains in the mine
- assess rock mass quality within geotechnical domains
- familiarity with empirical, analytical and numerical design methods
- carry out numerical modelling of stress and displacement and recommend actions resulting from investigation
- understand limitations of modelling tools
- interpret data from instrumentation, eg ground movements from displacement monitoring equipment.

Monitoring

- Ensure rock mass parameters and ground movements are captured in the mine database and in a timely manner
- ensure information from rock mass assessments and ground movement monitoring is interpreted in a timely manner
- analyse and report trends in monitoring data
- analyse and report data from ground support quality testing programs eg grout, groundwater, shotcrete, etc
- analyse and report on testing of mine fill
- design and specify instrumentation programs
- supervise installation and maintenance of monitoring equipment
- implement instrument reading and data collation programs
- monitor ground performance and make recommendations accordingly
- ensure systems are in place to determine the effect

stress changes are having and will have on the mine environment
- ensure systems are in place to monitor and assess mine seismicity in a timely manner
- ensure collection of groundwater from mine environment, grout and fill samples for testing
- monitor ground vibrations resulting from development and stope blasting.

Mining systems
- Sound practical understanding of mining methods, mining equipment capability and their interaction with the mine environment
- provide information to mine management on the effect current mining practices are having on localised and mine wide ground stability issues in a timely manner
- communicate to workforce on geotechnical awareness.

Safety, health and risk

Implementation of workplace health and safety systems that provide for:
- hazard identification
- risk assessment
- implementation of controls
- effective monitoring
- comprehensive review.

This should be undertaken with reference to appropriate codes and guidelines. Samples of these are provided in Appendix 1.

4. The Application and Assessment Process

4.1 Required documents

To apply for accreditation as a Chartered Professional Geotechnical Engineering (Mining), you must submit all of the following:

a. the prescribed application form
b. a detailed curriculum vitae (CV) providing clear evidence that you have worked competently in the general area of practice and in the Index Category or Categories applied for, and showing that you meet the requirements described in this Guideline
c. evidence that over the last three years you have fulfilled the PD requirements, as detailed in the PD Guideline
d. the names of three Chartered Professional sponsors, or professionals of comparable standing in accordance with By-law 7.3, who are familiar with your qualifications and experience (at least one of whom should be a Chartered Professional [Geotechnical Engineering]) and can substantiate your CV, only one of which can be from your current employer and you must:
e. sign a declaration that all the information you submit is a true and fair representation of your recent responsibilities
f. furnish any other information the Board may request from you
g. sign a declaration that all the information you submit is a true and fair representation of your qualifications and experience
h. sign a declaration of adherence to the AusIMM Code of Ethics
i. sign a declaration that you will adhere to the PD program
j. pay the required application fee, if applicable.

4.2 Assessment

Your CV and PD records will be analysed for evidence that you meet the requirements for this accreditation. Each of your sponsors will be required to submit a confidential report to the Board of Chartered Professionals. You may be invited by the Board to attend an interview in support of your application.