

TA3120 Mining Engineering II
Final Exam, June 16th, 2008
Open Pit Section – Time 1.5 hours
This is an open book exam

Answer any three (3) of the following four questions. All questions are of equal value.

1.
 - A. Describe the use of the COSR ratio to establish the economic pit limit or, in high value orebodies, to the decision to move underground.
 - B. Discuss the instantaneous, operating and overall stripping ratios which exist within an ultimate pit design and how they are used in the planning process.

2.
 - A. There are many problems which can arise from assigning revenues to orebodies which contain a combination of various metals. Discuss briefly two approaches which may be used to accomplish this and what problems each may present.
 - B. Illustrate the concept of “Net Smelter Return” through the example of a Copper-Zinc-Gold- Silver orebody to describe how revenues returned from the sale of mineral concentrates are reduced through the milling, smelting and refining process as compared to the absolute contained revenues.

3. Much research and discussion has gone into perfecting computer assisted methods to establish what is often defined as the ultimate pit limit. However, it is then the job of the long and short range planning process to optimize the operation within that ultimate reserve. First briefly define your understanding of the “optimization” process and how that is accomplished through the establishment of intermediate pit expansion phases as well as stripping and grade control strategies.

4. Provide a brief Discussion of 5 of the following items outlining their importance in the mine design process.
 - A. The important qualifications of the “Qualified Person” in reporting mineral resources to the marketplace to obtain project financing.
 - B. The important requirement of a project before mineral resources can be converted to mineral reserves..
 - C. The information to be gained from a tonnage grade curve.
 - D. Techniques for slope stability management.
 - E. Describe the difference between compliance monitoring and effects monitoring and the importance of each
 - F. Define environmental bonding and discuss the potential problems associated with the process