

Paper DB2 – Incorporating subject areas:

- Financial Strategy
- Risk Management

Diploma in Financial Management

All questions are compulsory and **MUST** be answered.

The project **MUST** be written in English.

The maximum word count (including appendices and tables but excluding table of contents, references and bibliography) is 5,000.

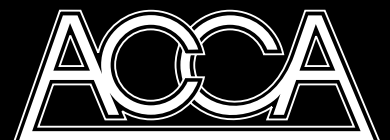
The project **MUST** be TYPED in black ink, one-sided, double-spaced, using a minimum 12-point font size and a 1-inch margin at each side. **HANDWRITTEN SUBMISSIONS WILL NOT BE ACCEPTED.** The project must be submitted by post, electronic submissions are not acceptable.

The project should be submitted on A4 paper with your student number, project name, date and page number at the top of each page.

A project submission form **MUST** be completed for each project submitted and attached to the front of the project.

The Association of Chartered Certified Accountants

B Module M



Section 1 – Incorporating subject areas: Financial Strategy and Risk Management.

This ONE question is compulsory and MUST be attempted

1 Balkan Nickel Limited

Balkan Nickel Limited was created for the exploration and exploitation of nickel deposits in the Balkan region. The company, which was incorporated in March 2007, was founded by three individuals who had previously worked as senior managers for an international mining company Aberdare Inc. They had decided to form their own company soon after their employer announced that it would cease its nickel mining operations. Following a strategic review, the board of Aberdare Inc had decided that the company should focus exclusively on its iron and manganese mining operations.

Before this change in strategic direction by Aberdare Inc, all three individuals had been engaged in the exploration of nickel deposits in the Balkan mountain range. They were convinced that profitable opportunities abounded in the Balkans and, as Aberdare Inc was no longer interested in nickel mining, they decided to form Balkan Nickel Limited as a vehicle to exploit these opportunities. At present, the three founder members of the newly-formed company are the only directors and the only shareholders, with each holding 500,000 equity shares.

Nickel

Nickel is a silvery-white metal that can be used as a pure metal or can be alloyed with other metals. It has numerous qualities including strength, resistance to corrosion and the capacity to be magnetised. These qualities have made it a popular metal for use in a wide range of industrial, aerospace, military and consumer products. The main uses for the metal are:

	Uses (Approx. %)
Stainless steel products	65
Other steel and non-ferrous alloys	20
Plating	9
Other (including coins)	6
	<hr/>
	100

Approximately 1.2 million tonnes of pure nickel are produced in the world each year and, although production output is expected to rise, the supply of this metal is forecast to lag behind demand for the foreseeable future. In recent years, the demand for pure nickel, particularly from developing countries such as India and China, has risen sharply and existing nickel mines have been unable to respond. As a result, the price of pure nickel has risen significantly, reaching a peak of \$22,900 per tonne before falling back to its current price of \$17,000 per tonne. History has shown, however, that prices are volatile and are highly susceptible to changing global economic conditions. During the early 1990s, for example, prices fell dramatically following the collapse of the Eastern bloc.

The mining project

The proposed project for Balkan Nickel Limited is located in that part of the Balkan mountain range that cuts through the centre of Bulgaria. The company recently acquired a licence from the Bulgarian government, at a cost of \$1 million, to explore for nickel on the eastern edge of the mountain range near the Black Sea. So far, a feasibility study, at a cost of \$12.5 million, has been undertaken by the company. This study, which involved making more than four hundred drill holes over a length of nearly 40 kilometres, has yielded promising results.

Three options are currently being considered to exploit the nickel ore resources and are set out below.

Option 1 – Independent exploitation with an AIM listing

Under this option the company will mine the nickel independently and will raise equity through a listing on the London Alternative Investment Market (AIM). There will be an issue of shares to investors which will comprise 75% of the issued share capital of the company, leaving 25% in the hands of the three founders. There will also be an issue of \$100 million of 7% debt, which will be taken up by banks and other financial institutions.

To exploit the nickel deposits, opencast mining will be used. This means that the nickel ore will be quarried using mechanical shovels that cut into cliff faces. This type of mining involves the removal of vast quantities of waste material (known as overburden) in order to obtain the nickel ore. Approximately, five tonnes of waste material will have to be removed in order to obtain one tonne of nickel ore. Once the nickel ore has been sorted, it will be transported by lorry to the nearest port of Varna. The proposed mining area is located in a fairly remote region where there is poor infrastructure, hence a new road and some bridges will have to be constructed for part of the route to Varna.

When the nickel ore reaches Varna, it will be shipped to a new plant that is to be built further down the Black Sea coast. Here, the nickel ore will be processed using a simple acid-leach method. Although widely used in the copper industry, this is still a novel method of processing for the nickel industry. Nevertheless, trials have shown that the process is very effective and the recovery rate from the plant (that is the percentage of nickel hydroxide extracted from each tonne of nickel ore) is expected to be around 75%. The nickel hydroxide will then be shipped to a refinery in Russia where pure nickel is extracted. It is estimated that 1.4% of pure nickel will be extracted from each tonne of nickel hydroxide.

To be able to mine, process and transport the nickel ore to a refinery, the following capital expenditure estimates have been made:

	\$m
Acid-plant construction	85
Mining equipment	56
Mining vehicle fleet	18
Civil engineering and road construction	34
Storage facilities	22
Ancillary items and contingencies	20
	<u>235</u>

All the expenditure listed above will be incurred during the early part of the first year of mining operations.

The licence to mine the resources covers a five-year period and so all the above capital expenditure items will be written off in equal instalments over this period. Only the acid-plant and the mining equipment are likely to have residual values at the end of five years and these have been estimated at \$20m and \$10m respectively. The cost of obtaining the licence and the cost of the feasibility study will also be written off over this period and a provision of \$4 million will be made in each of the five years to cover the cost of making good the environmental damage at the end of the project's life.

In addition to the capital expenditure outlined above, the company will require an initial injection of a sum equal to 15% of the expected sales of the first year to meet its working capital requirements. After the first year, the working capital requirements must remain at a constant 15% of sales revenues in each year, to avoid liquidity problems. Working capital held during the fifth year of operations will be liquidated in the following year.

At the end of the life of the project, the company must make good any environmental damage caused by its operations. As the landscape will be scarred by large heaps of waste material, this is expected to cost around \$20m. The cost of reparations will be incurred in the year following the cessation of mining operations. The commitment to clean up the site after mining operations have ceased was imposed by the Bulgarian government to assuage the concerns of environmentalists. However, this commitment has not been enough to satisfy some environmental activists who have threatened to take disruptive action to prevent mining operations in what is widely regarded as an area of natural beauty.

Nickel production, costs and prices

The feasibility study, referred to earlier, has shown that the following amounts of nickel ore can be mined over the five-year period of the licence.

	2008	2009	2010	2011	2012
	000	000	000	000	000
Nickel ore extracted (tonnes)	1,500	1,800	2,000	2,400	2,000

The price of pure nickel is forecast to rise, in real terms, over the five years of mining operations. The consensus amongst analysts is as follows:

Consensus forecast increase in real terms

% increase over current price	% increase over previous year				
	2008	2009	2010	2011	2012
	2.0	3.0	3.0	4.0	4.0

Variable operating costs are estimated at \$60.00 per tonne of nickel ore extracted and annual fixed operating costs (including depreciation and write-offs) are estimated at \$78.0 million. The refinery, which will convert the nickel hydroxide into pure nickel, will charge 30% of the selling price of the pure nickel for its services. (The sales revenue from the pure nickel will be received in £sterling.)

Option 2 – Joint venture and an AIM listing

Soon after announcing the results of the feasibility study, the three founders of the company were approached by the chief executive of Zagros Mining Inc, a large US mining company. He has proposed a joint venture between the two companies to exploit the nickel deposit that had been discovered. The proposed terms of the joint venture include the following:

1. Any profits and capital investment outlays are to be shared equally between the two companies.
2. Zagros Mining Inc would make an immediate payment of \$5.0 million to each to the three founders of the company, rather than to Balkan Nickel Limited, as an incentive for them to sign the joint venture agreement on behalf of the company.
3. All the information mentioned in Option 1 above would also apply to this option, except that the nickel hydroxide would be refined in a refinery owned by Zagros Mining Inc, for which a charge of 25% of the selling price of the pure nickel would be made. Additional transportation charges of \$2.00 per tonne of nickel ore extracted would be incurred in getting the nickel hydroxide to this refinery.

The three founders of the company would raise the finance required for Balkan Nickel Limited's part of the joint venture, through an issue of shares on AIM and through an issue of debt to the banks, as in Option 1. The same amount of debt will be issued, however, only half the number of equity shares proposed in Option 1 will be issued under this option.

Option 3 – Independent exploitation using private equity funding

The three founders of Balkan Nickel Limited have also been approached by the Caucasus Partnership Ltd. This private equity business, based in the UK, has proposed that Balkan Nickel Limited should exploit the nickel deposit independently but should be mainly financed by the Caucasus Partnership Ltd.

The Caucasus Partnership Ltd already has a strong portfolio of investments in nickel, cobalt and copper mining companies and is now interested in increasing its portfolio by investing in Balkan Nickel Limited. This interest is related to the fact that it recently invested heavily in a nickel mining company in Serbia, which collapsed when it was found that the nickel ore deposits proved too difficult to mine. Following this collapse, the Caucasus Partnership Ltd found itself owning state-of-the-art mining equipment and an acid-leach plant in Serbia. By investing in Balkan Nickel Limited the private equity company would be able to offset some of the losses incurred by putting these assets to good use.

The directors of the Caucasus Partnership Ltd have made the following proposals and points to the founders of Balkan Nickel Limited.

1. Ownership of the acid-leach plant and state-of-the-art mining equipment, which are currently owned by the Caucasus Partnership Ltd and which are valued at \$88 million and \$62 million respectively, will be transferred to Balkan Nickel Limited. These will be paid for during the first year of operations.
2. The residual values of the acid-leach plant and mining equipment at the end of the five-year period are estimated at \$25m and \$14 million respectively.
3. All the remaining capital expenditure items identified earlier will be acquired by Balkan Nickel Limited.
4. Cash fixed costs and variable production costs will be the same as in Option 1 and working capital of 15% of sales will also remain the same as in Option 1.
5. To finance the cash flow deficit in the first year, Balkan Nickel Limited will issue debt and equity.
6. \$100 million of debt will be raised, at an interest rate of 7% per year, and the new issue of equity will comprise 75% of the total issued equity capital, as in Option 1. However, all the debt and new equity will be issued to the Caucasus Partnership Ltd.
7. The nickel ore would be processed at the acid-leach plant in Serbia before the nickel hydroxide is sent to a refinery. The recovery rate of nickel hydroxide at this plant is 78%.
8. Additional transportation costs of \$10 per tonne of nickel ore extracted will have to be included in the operational costs to take account of the greater distance to the Serbian plant. (The ore will still be transported to Varna in the first instance, but will then be taken by train from Varna to Serbia.)
9. As the nickel will be mined using more technologically-advanced equipment than in Option 1, the annual production of nickel ore is likely to be 5% higher than the estimates given earlier.
10. At the end of the five-year mining period, the Caucasus Partnership Ltd will seek to sell its shares in Balkan Nickel Limited through a 'trade sale' to a large mining company.

If this project is successful, a similar project in the Balkan region is planned as soon as this project is complete. However, a suitable project has yet to be identified.

Assume that the total risk arising under each option will be broadly the same and that the weighted average cost of capital for each option will be 10%.

The tax rate is expected to be 20% on profits and this will be paid in the year following the year in which the relevant profits are made.

Required:

Assume it is now 1 January 2008.

- (a) Calculate, from the perspective of Balkan Nickel Limited, the forecast:
- (i) net present value;
 - (ii) discounted payback period;
 - (iii) annual net profits after tax;
- of the mining project under each of the three options available and discuss these results. (45 marks)
- (b) Calculate the value per share of Balkan Nickel Limited under each of the three options. (6 marks)
- (c) Discuss the options available to the founders of the company, taking full account of the potential benefits and problems of each, and state which option you would recommend and why. (21 marks)
- (d) Prepare a report for the board of directors of Balkan Nickel Limited which identifies and assesses the key operational, currency, inflation and economic risks faced by the company and which explains how these risks might be managed. (28 marks)

Notes:

1. All workings should be to the nearest \$000 and to the nearest tonne.
2. All key assumptions and workings must be clearly shown.
3. The taxation charge should be based on operating profits (i.e. profits **BEFORE** interest charges) when undertaking net present value and discounted payback period calculations and based on profits **AFTER** interest charges when calculating annual net profits.

(100 marks)

End of Project