**Question on Cu mining and processing** Name: Eric Turner

**9. Figure 2** belowshows the energy used to extract copper from ores of different purities.

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**Table 2** below shows the average copper content in ores mined in Australia.



**(a)** Suggest reasons why the energy used for extraction increases as the ore grade

declines.

**As the ore grade declines the ore is less concentrated. This means that more excavations/mining must occur for the same amount of minerals to be collected. Therefore increasing the amount of energy required.**

**(b)** Use the information in **Table 2** to calculate the predicted percentage decrease in the average copper content of ores between 1900 and 2050. [2 marks]

*Show your working.*

7.6-0.6=7

7 Predicted decrease .....................................%

**(c)** Use the information in **Figure 2** and **Table 2** to calculate the predicted percentage

change in the energy used to extract copper from its ore between 1900 and 2050.

*Show your working.* [2 marks]

20 in 1900

140 in 2050

600% change

**(d)** Describe **one** method that is used to extract metals from low grade ores. [2 marks]

Phytoextraction is a way of extracting low grade ores from an area of land. Plants absorb minerals through their roots. The minerals are then concentrated in the plants leaves. The plants can then be burned and the minerals extracted from the ash.

**(e)** Exploratory drilling to search for new deposits is very expensive.

Describe **two** methods that are used to find the areas where drilling may be worthwhile.

[4 marks]

Gravimetry measures minute changes in the earths magnetic field. These can be caused by build ups of mineral deposits underground.

**(f)** Suggest why an increase in the market price may change the cut-off ore grade of a

mineral. [3 marks]

The cut off ore grade is the minimum grade of ore that can be mined profitably. If the price of a mineral increases this Cut off ore grade will decrease as the mineral will be able to be sold at a higher price justifying higher extraction costs. (Total 15)