Project **Extractive Activities**

Topic **Accounting for stripping costs in the production phase – transition considerations**

Introduction

1. At the Committee meeting in May 2010, the Committee considered the draft Interpretation the staff had prepared in respect of accounting for production stripping costs.

2. The Committee considered the transition provisions of the draft Interpretation. Following the discussion, the Committee asked the staff to prepare an analysis of the transition considerations for an entity currently applying the strip ratio approach to accounting for production stripping costs. For convenience, Appendix B repeats the background to the calculation of the strip ratio and an illustration of its application, as was presented in Agenda paper 2A at the March 2010 Committee meeting[1].

3. The staff have prepared an analysis using a simple example. This analysis can be found in Appendix A, and it covers the following, using the facts in the example:

   (a) accounting for production stripping costs using the strip ratio approach (table 1), and

   (b) accounting for production stripping costs using the approach proposed in the draft Interpretation (table 2).

Summary of results

[1] http://www.iasb.org/NR/rdonlyres/BF4849EA-A8A4-4425-9296-F45212A80260/0/1003ap2AobsIFRICIAS16Productionstrippingcostscostsandbenefit.pdf

Comparison of the accounting effect of the two methods

4. Refer to **table 3** below:

Table 3				
Reporting period	**Effect on the income statement**		**Effect on the balance sheet**	
	Strip ratio approach	Proposed approach	Strip ratio approach ('stripping cost asset')	Proposed approach (stripping campaign component)
1	(100)	(100)	-	-
2	(200)	-	100	300
3	(200)	(400)	-	-
4	(200)	-	-	200
5	(100)	(300)	-	-

5. Under both the strip ratio approach and the proposed approach, the full CU 800 of stripping costs is recorded as a charge to the income statement, by the end of the fifth reporting period.

6. However, the timing and presentation of the charge to the income statement differs between the two approaches. The strip ratio approach provides a 'smoother' charge to the income statement, and all the charges are presented as amortisation. Under the proposed approach, the impact on the income statement is more 'lumpy', and the charges are either presented as inventory costs, or on the amortisation/depreciation line.

7. In addition, there is no remaining 'stripping cost asset' or 'stripping cost component' on the balance sheet at the end of the fifth reporting period, under either approach. However, the strip ratio approach results in a lesser amount being capitalised to the balance sheet in period 2, than is capitalised under the proposed approach, because only the *excess* stripping costs (above the average level expected) are capitalised.

Transitioning from the strip ratio approach to the proposed approach

8. In the case of a surface mining operation with a uniform, horizontal seam that is relatively close to the surface, the effort to strip and extract the ore would be much the same from one period to the next. Routine stripping would predominate in this environment. *For such a mining operation, accounting under either the strip ratio approach or the proposed approach would be much the same*, apart from the fact that the costs of routine stripping may be presented on different lines in the income statement.

9. However, in the case of an entity such as MineCo, where production stripping costs are incurred in a non-uniform manner due to the position of the ore body, ore would not be mined at a uniform rate over the life of the mine. *In this type of scenario, the two approaches will ultimately deliver the same accounting result, but the timing of the impact on the income statement and balance sheet from one period to the next could be different*.

10. Consider table 3 again. Assume that MineCo applied the strip ratio approach for periods 1 and 2, and the proposed approach from the end of reporting period 2 onwards. At the end of period 2, MineCo would have amortised CU 300 to its income statement and would have a 'stripping cost asset'[2] on its balance sheet of CU 100 (table 1). At the same point, the proposed approach would have reflected a charge to its income statement of CU 100 and a stripping cost component on its balance sheet of CU 300.

11. Assuming prospective application of the proposed approach, the stripping cost asset of CU 100 would be fully amortised in period 3 (as the ore to which it relates is fully extracted in that period). The income statement at the end of period 3 would reflect a cumulative charge of CU 500, calculated as follows:

Cumulative charge at beginning of period 3 (under strip ratio approach)	(300)

[2] In practice, the classification of such an asset varies – 'stripping cost asset' is used as a generic term here, for ease of reference.

Amortisation of the asset b/f at the start of period 3	(100)
Cost of current production for period 3	(100)
Total cumulative charge at end of period 3	**(500)**

12. The position at the end of period 3 is then the same as it would have been if MineCo had applied the proposed approach from the beginning. Accounting in periods 4 and 5 would continue according to the proposed approach (see table 2 in Appendix A). It is the staff's understanding that the information required to apply the proposed approach, such as the identification of stripping campaigns, is generated at mine planning stage, and therefore would be available, even if a company has elected to use the strip ratio approach in the past.

13. The staff note that the value of the stripping cost asset on the balance sheet using the strip ratio approach could be different to the value of the stripping cost component recognised using the proposed approach, at the date the Interpretation is effective. If this is the case, the staff do not recommend that an entity adjust the asset balance at that date. Doing so would reduce the comparability of the entity's financial information between reporting periods and may be an onerous exercise, at odds with the benefit to be achieved.

14. In the event that there is a stripping cost asset on the balance sheet when the entity transitions to the proposed approach, the entity shall ensure that the balance is depreciated or amortised over the specific section of ore to which it relates, and not over the remaining life of the mine.

Transitioning from the US GAAP approach to the proposed approach

15. In US GAAP, the FASB – ASC Subtopic 930-330 *Extractive Activities−Mining−Inventory*[3] requires that all production stripping costs be accounted for as costs of current production, as a component of inventory cost. This means that at no point during the production phase will production stripping costs be capitalised to the balance sheet.

[3] EITF 04-6 *Accounting for Stripping Costs Incurred during Production in the Mining Industry*

16. In the case of a surface mining operation with a uniform, horizontal seam that is relatively close to the surface, *accounting under either the US GAAP approach or the proposed approach would be the same.*

17. However, in the case of an entity such as MineCo, where production stripping costs are incurred in a non-uniform manner due to the position of the ore body, it may happen that an entity's income statement has been 'overcharged' and its assets 'understated', compared to what would have happened if the proposed approach had been applied.

18. In this instance, consistent with the recommendation and reasons given in paragraph 13, the staff do not recommend that the entity reverse out charges to its income statement in order to recognise the higher stripping cost component on the balance sheet at the date of transition.

Staff recommendation on the transition provisions in the Interpretation

19. The transition provisions in the draft Interpretation currently state that 'an entity should apply the draft Interpretation prospectively to stripping campaigns beginning on or after [date to be set 3 months after the draft Interpretation is finalised]'.

20. Given the analysis in this paper, the staff think that applying the proposed approach prospectively *to the next stripping campaign that begins on or after the effective date of the Interpretation* would not be of any value. If the information needed to apply the proposed approach is available at any one time, then there is no reason to wait for the next stripping campaign to begin.

21. The staff recommend that that the proposed approach should be applied prospectively to production stripping costs, from the effective date of the Interpretation. The staff also recommend that the opening balances at the date of transition are not restated as if the proposed approach had been always applied.

22. The staff therefore recommend the following wording for the transition provision in the draft Interpretation:

    'an entity should apply the draft Interpretation prospectively to production stripping costs incurred on or after [date to be set 3 months after the draft

Interpretation is finalised]'. An entity shall use the existing carrying amounts of tangible or intangible assets as opening balances at that date.

Questions for the Committee
1. Does the Committee agree that the proposed approach should be applied prospectively to production stripping costs from the effective date of the Interpretation? 2. Does the Committee agree that the entity should not restate opening balances? 3. Does the Committee have any other wording suggestions for the transition paragraph?

Appendix A – Detailed analysis

A1 Consider the following example:

MineCo operates a mine that has ore reserves located in an uneven seam, requiring overburden (waste material) to be removed in stages or layers in order to access the full depth of the ore body. Some of the reserves accessed through the stripping activity will be extracted in the current period, and some will be extracted in future periods. The average strip ratio for the mine using mine plan data is calculated as 4:1.

For the purposes of this example, assume that all the stripping costs incurred meet the definition of an asset. Assume also that all the stripping activity in periods 2 and 4 is as a result of stripping campaigns undertaken in order to reach deeper ore/ Assume that routine stripping is undertaken in periods 1, 3 and 5.

Assume also that all the ore reserves that were made available by the stripping campaign in period 2 are extracted in period 3.

The table below provides relevant data for the production phase of the mine, which runs over 5 reporting periods.

Reporting period	Stripping costs (CU)	Actual strip ratio
1	100	2:1
2	300	6:1
3	100	2:1
4	200	4:1
5	100	2:1

Using the above example, the staff have prepared an analysis of the accounting for production stripping costs under the strip ratio approach and under the approach proposed in the Interpretation, and a comparison thereof.

Accounting under the strip ratio approach

A2 Under this approach, in each reporting period, all stripping costs are capitalised initially. Then, depending on the result of the actual strip ratio for that period compared to the average strip ratio, some (or all) of the capitalised costs will be

immediately amortised and included in current period production. Amortisation of capitalised stripping costs for the period is calculated as:{actual costs of the period/actual strip ratio}x average strip ratio. The amount amortised is limited to the capitalised cost balance (assume no 'liability' is created).

A3 This is best illustrated working with the figures provided in the table in paragraph 3. **Table 1** shows the results of working the example on the strip ratio method:

Table 1

Reporting period	Stripping costs incurred (CU)	Actual strip ratio	Stripping costs capitalised	Calculation of amount to be amortised	Amortised to income statement	Balance sheet effect
1	100	2:1	100	{100/2}x4= 200; but limited to capitalised balance	(100)	-
2	300	6:1	300	{300/6}x4= 200	(200)	100
3	100	2:1	100	{100/2}x4= 200	(200) [100 c/f from period 2 + 100 capitalised in period 3]	-
4	200	4:1	200	{200/4}x4= 200	(200)	-
5	100	2:1	100	{100/2}x4= 200; but limited to capitalised balance	(100)	-

A4 In period 2, the stripping costs incurred were higher than expected (actual strip ratio exceeded the average strip ratio). This means that of the CU 300

incurred in the period, only CU 200 was amortised according to the strip ratio calculation. The remaining CU 100 is presented on the balance sheet as the 'stripping cost asset' In all the other periods, the actual strip ratio was either less than or equal to the average strip ratio. This resulted in the stripping costs in those periods being immediately amortised, and the balance on the 'stripping costs asset' in the balance sheet from period 2 to be amortised as well. . The total income statement effect over the 5 periods is a charge of CU 800, which equals the total stripping costs incurred.

Accounting under the approach proposed in the draft Interpretation

A5 Under this approach, the entity would need to determine whether the benefit created by the stripping activity meets the definition of an asset:

A6 If not, the stripping costs shall be included in operating costs in the current reporting period.

A7 If so, and the stripping activity benefits the current reporting period only, then the stripping costs are to be included in inventory costs for that period (typically for routine stripping).

A8 If so, and the stripping activity benefits a future reporting period (typically for stripping done under a stripping campaign), then stripping costs are accounted for as an addition to/enhancement of an existing asset (stripping campaign component).

A9 Further, the draft Interpretation states that the stripping campaign component must be amortised (or depreciated) over the reserves that become available as a result of the stripping campaign.

A10 The following **table 2** illustrates the accounting effects of the proposed approach:

Table 2					
Reporting period	**Stripping costs incurred (CU)**	**Income statement effect: current period costs**	**Income statement effect: amortisation**	**Balance sheet effect**	**Cumulative balance sheet effect (balance of the stripping campaign component)**
1	100	(100)	-	-	-
2	300	-	-	300	300
3	100	(100)	(300)	-	-
4	200	-	-	200	200
5	100	(100)	(200)	-	-

A11 Stripping campaigns are undertaken in period 2 and 4 – as a result, all the stripping costs incurred in those periods are capitalised to an existing asset, as a component. The stripping campaign components are fully depreciated/amortised in the periods immediately following the campaigns (periods 3 and 5 respectively), because that is when the ore uncovered by the campaign is extracted.

A12 In periods 1, 3 and 5 only routine stripping is done. The approach assumes that the ore to which the routine stripping is uncovering is mined in the current period, therefore the stripping costs become part of the cost of production in that period. The total income statement effect over the 5 periods is a charge of CU 800, which equals the total stripping costs incurred.

Appendix B – Background on the strip ratio approach

B1 This approach makes use of a strip ratio (life-of-mine strip ratio, or average strip ratio) which will be calculated using the long-term mine plan data.

B2 Because the deposit of minerals is not uniform throughout a mine, an entity will, in practice, be mining a ratio of waste materials to mineral ore that is different from the calculated average strip ratio. Therefore, for each period, the entity will (using the same formula as the average strip ratio) calculate an *actual* strip ratio of waste removed in the period vs. ore extracted in the period. This will be compared to the average strip ratio.

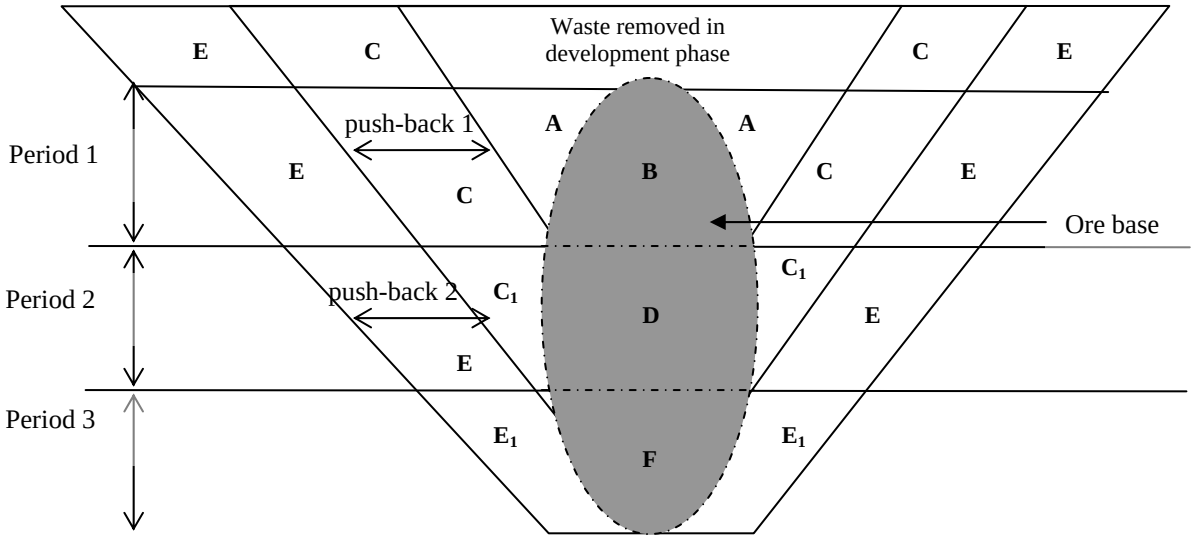
B3 The average strip ratio is calculated as:

$$\frac{\text{Volume of overburden } (m^3)}{\text{Weight of ore (tonnes)}}$$

B4 The ratio indicates the ratio of waste removed to ore recovered. It is also often referred to as the' life-of-mine strip ratio'. This ratio provides an *average,* over *the life of the mine,* of how much waste will be stripped in order to yield a tonne of ore.

B5 The diagram[4] and explanation below provide an illustration of what the strip ratios mean. Note that periods 1 – 3 are during the production phase.

[4] Adapted from the presentation made to the IFRIC in November 2009 by Niall Weatherstone, Chief Adviser – Evaluation of Rio Tinto London Limited.



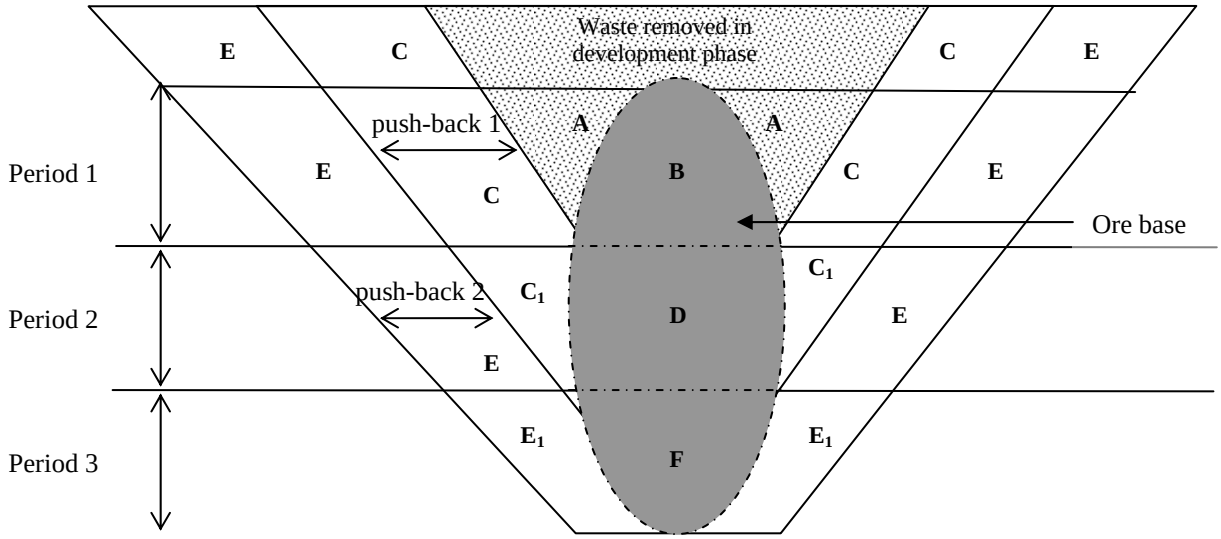
Period 1

B6 In period 1, the ore base (depicted by **B + D + F**) is accessed for the first time. The uppermost waste on the surface was removed during the development phase.

B7 The section of the ore base mined in the current period is depicted by area **B**. Some waste removal (**A**) takes place at the same time in order to fully expose the ore at **B**. Area **A** may have a strip ratio of, say, 3:1, meaning that 3 times as much waste material is being removed for every measure of ore extracted. Within **B**, negligible or no waste is removed – the strip ratio would be 0:1 – indicating for every measure of ore extracted, there is no waste component.

B8 Also in period 1, push-back 1 is done (the areas designated as **C**), where waste is stripped back around the ore body, in order to provide access to the section of the ore base which is only going to be mined in period 2 (area **D**). For the push-back, the strip ratio would be something like 15:1, indicating that 15 times more waste is being removed for every measure of ore.

Period 2

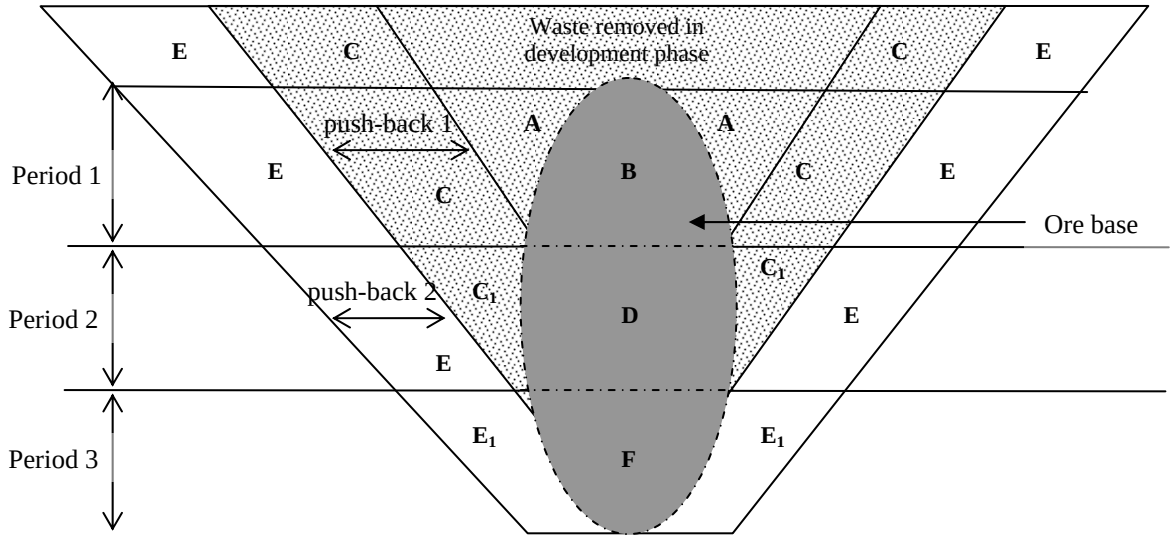


B9 Push-back 1 (area **C**) performed in period 1 has provided access to the section of the ore base **D**, which can now be mined in period 2.

B10 Some waste removal (**C_1**) takes place at the same time in order to fully expose the ore at **D**. Area **C_1** may have a strip ratio of, say, 4:1, meaning that 4 times as much waste material is being removed for every measure of ore extracted. Within **D**, negligible or no waste is removed – the strip ratio would be 0:1 – indicating for every measure of ore extracted, there is no waste component.

B11 Once again, at the same time as ore is being extracted, push-back 2 is undertaken (areas designated as **E**), in order to provide access to the section of the ore base which is only going to be mined in period 3 (area **F**). The strip ratio of this push-back is, say, 20:1. The proportionate amount of waste material in this push-back is higher than in push-back 1, possibly due to geology and depth factors.

Period 3



B12 Push-back 2 (Area **E**) in period 2 has provided access to section **F** of the ore base in period 3, which will now be mined.

B13 Some waste removal (**E_1**) takes place at the same time in order to fully expose the ore at **F**. Area **E_1** may have a strip ratio of, say, 5:1, meaning that 5 times as much waste material is being removed for every measure of ore extracted. Within **F**, negligible or no waste is removed – the strip ratio would be 0:1 – indicating for every measure of ore extracted, there is no waste component.