**Advanced Profitability Analysis**

**Learning Problems**

**Answer Keys**

**Discontinued Operations at Acme**

1.

 **2017**

 Discontinued operations1 CAD (4,425,000)

 **2018**

 Discontinued operations2 CAD (300,000)

1((-2,900,000) + (-3,000,000)) (1 - .25)

2((-600,000) + (200,000)) (1 - .25)

Any income statements before 2017 should be restated to include the discontinued operations.

2.

 In 2017, the assets and liabilities of the CD Division should be shown separately as current assets and current liabilities since they are being held for sale in the next year – the assets and liabilities should not be netted against each other. In 2018, no disclosure was required as the assets had been sold by the end of the period. Any balance sheets for previous years should be restated to show the assets and liabilities of the CD Division separately as current assets and current liabilities for comparison.

In 2017 and 2018, operating, investing, and operating cash flows relating to discontinued operations should be shown separately in each section. Any cash flow statements for previous years should be restated to show operating, investing, and financing cash flows of the CD Division separately for comparison.

3.

No separate disclosures are allowed if the held-for-sale conditions are not met. If held for sales conditions are initially met but then are not, the discontinued operation should be reclassified as continuing operations.

**Determining Discontinued Operations**

1.

**Case 1**

**June 3, 2013**

Yes, clearly distinguishable operating and financial information is available.

**July 2, 2013**

No, the records to calculate net income and the gain/loss on disposal are not available below the divisional level. Frito-Lay is a product in the snack food division, so clearly distinguishable information is unavailable.

**Case 2**

**May 8, 2013**

Yes, clearly distinguishable information is available, but since this is an abandonment of assets, it is not shown as a discontinued operation until the assets are abandoned. It cannot be disclosed as held for sale before May 8, 2013.

**May 28, 2013**

No, McDonald’s is replacing company-owned stores with franchised outlets.

**Case 3**

**September 1, 2013**

Yes, clearly distinguishable information is available, but since this is an abandonment of assets, it is not shown as a discontinued operation until the assets are abandoned. It cannot be disclosed as held for sale before September 1, 2013.

**September 12, 2013**

No, Beaver Lumber is replacing regular stores with a warehouse outlet.

**Case 4**

**November 1, 2013**

Yes, clearly distinguishable information is available.

**November 15, 2013**

No, Spalding is replacing in-house production with outsourcing. Also, clearly distinguishable information is not available.

**Revenue Recognition**

**Case 1 – Point in Time or Over Time**

Revenue of CAD 250,0000 should be recognized over two years as the company fulfills the performance obligation likely on an elapsed time basis (i.e., an output method). Willow Industries simultaneously receives and consumes the benefits from the good or service, which warrants recognizing revenue over time.

**Case 2 – Point in Time or Over Time**

Revenue of CAD 8,500,000 should be recognized over two years as the company fulfills the performance obligation likely on a completion-to-date (i.e. output method) or cost-incurred basis (i.e. input method). Emerson Electric is enhancing an asset that Nicola Development controls, which warrants recognizing revenue over time.

**Case 3 – Point in Time or Over Time**

The contract should be divided into two distinct performance obligations, software development valued at CAD 1,300,000 and training valued at CAD 200,000 (1,000 X 200). Software development was valued at the total transaction price minus the standalone selling price of the training obligation.

Software development revenue should be recognized over time as the asset has no alternative use, and Centurion has the right to payment for the work completed. Revenue will likely be recognized based on programming hours incurred (i.e. input method), costs incurred (i.e. input method), or project milestones (i.e. output method). Training revenue should be recognized over time as the customer simultaneously receives and consumes the benefit from the goods or services, likely using training hours (i.e. output method).

Centurion should capitalize the CAD 25,000 spent initially bidding on the contract and amortize it against the revenues recognized for software development and training. CAD 21,667 (1,300,000 / 1,500,000 X 25,000) should be amortized against the software development revenue, and CAD 3,333 (200,000 / 1,500,000 X 25,000) against the training revenue, with the same methods used to recognize the revenue. If the bid is unsuccessful, the capitalized costs should be written off immediately.

**Case 4 – Point in Time or Over Time**

Badger should recognize revenue of CAD 2,500,000, including the deposit at the point in time when the equipment is transferred to Able, and it takes control. The revenue is not recognized over time because the equipment is not specialized and can be sold to alternative customers if the order is cancelled. The non-refundable deposit should immediately be recognized as revenue if the order is cancelled.

**Case 5 – Bill-and-Hold Arrangements**

A bill-and-hold arrangement is when a seller bills a customer for goods but retains physical possession until they are transferred to the customer or another designated party. Typically, revenue is recognized when a good is delivered and a customer takes control of the product. The customer may still take control of the product if it remains in the seller’s possession, and they can direct its use and realize the risks and rewards of ownership. The seller is only providing custodial services after the sale.

Under IFRS, a customer only gains control in a bill-and-hold arrangement if the:

* Reason for the arrangement is substantive;
* Product is identified separately as belonging to the customer;
* Product is currently ready for physical transfer to the customer; and
* Seller cannot use the product or direct it to another customer.

A bill-and-hold arrangement is substantive if it has a legitimate business purpose and is not being used as an incentive for the customer to buy products early so the seller can meet its sales quota. Cecil can immediately recognize revenue of CAD 5,400,000. If Cecil paid for the transportation, this activity should be treated as a separate performance obligation and a portion of the revenue held back until the obligation is fulfilled.

**Case 6 – Consignment Arrangement**

Hansen sold instruments using a consignment arrangement. Hansen controls the inventory, as they can direct dealers to ship instruments to other dealers to address inventory shortages. The dealers have no obligation to pay for the products until they are sold. Revenue is recognized by Hansen when the dealer sells the products to the final customer, or a specified return period expires.

**Case 7 – Non-Refundable Up-front Fees**

The initial fee should be recognized over time as the company fulfills the performance obligation likely on an elapsed time basis (i.e. output method). The customer simultaneously receives and consumes the benefits from the good or service, which warrants recognizing revenue over time.

**Case 8 – Determining the Transaction Price**

Seaway should recognize CAD 5,530 in revenue at a point in time when it ships the engine to the customer who takes control. Revenue is recorded on a net basis after adjusting for the trade discount, cash discount, and expected returns (6,600) (1 - .10) (1 - .02) (1 - .05) = 5,530.

**Case 9 – Standalone Warranty Contracts**

Auto Shield should recognize warranty revenue over time as they fulfill the performance obligation, as the customer simultaneously receives and consumes the benefits from the goods or services. The company could determine, on average, what percentage of total warranty costs are incurred each year of a contract’s life and use those percentages to recognize revenue on new contracts (i.e. input method).

**Case 10 – Customer Options for Additional Goods**

Hecla should treat the CAD 20,000 discount (2 x 100,000 x .10 = 20,000) as a separate performance obligation of the sales contract. Revenue of CAD 180,000 (2 x 100,000 – 20,000 = 180,000) should be recognized immediately. Revenue of CAD 20,000 relating to the discount should be recognized when the following 100,000 units are sold to Joseph for CAD 180,000 (2 x 100,000 x .90 = 180,000) or when the offer expires.

**Case 11 – Subsidized Customer Financing**

Deferred revenue is recognized at the present value of future cash flows. If the interest rate charged by the company equals the discount rate used to determine the present value of future cash flows, the two rates cancel out, and the revenue recognized equals the face value of the sales contract. If the interest rate earned by the company is less than the discount rate, the contract revenue recognized will be below the face value of the sales contract. The increase in value of the receivable each period due to the passage of time is recognized as interest revenue using the effective interest rate method.

$\frac{15,000}{(1+ \frac{.10}{12})^{24}}$ = 12,291.14

**Initial Entry**

Notes receivable 15,000

 Sales 12,291.14

 Discount on notes receivable 2,708.86

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Period** | **Beginning Balance** |  | **Interest Revenue**  | **Ending Balance** |
| 1 | 12,291.14 |  | 102.43 | 12,393.57 |
| 2 | 12,393.57 |  | 103.28 | 12,496.85 |
| 3 | 12,496.85 |  | 104.14 | 12,600.99 |
| 4 | 12,600.99 |  | 105.01 | 12,705.99 |
| 5 | 12,705.99 |  | 105.88 | 12,811.88 |
| 6 | 12,811.88 |  | 106.77 | 12,918.64 |
| 7 | 12,918.64 |  | 107.66 | 13,026.30 |
| 8 | 13,026.30 |  | 108.55 | 13,134.85 |
| 9 | 13,134.85 |  | 109.46 | 13,244.31 |
| 10 | 13,244.31 |  | 110.37 | 13,354.68 |
| 11 | 13,354.68 |  | 111.29 | 13,465.97 |
| 12 | 13,465.97 |  | 112.22 | 13,578.18 |
| 13 | 13,578.18 |  | 113.15 | 13,691.33 |
| 14 | 13,691.33 |  | 114.09 | 13,805.43 |
| 15 | 13,805.43 |  | 115.05 | 13,920.47 |
| 16 | 13,920.47 |  | 116.00 | 14,036.48 |
| 17 | 14,036.48 |  | 116.97 | 14,153.45 |
| 18 | 14,153.45 |  | 117.95 | 14,271.39 |
| 19 | 14,271.39 |  | 118.93 | 14,390.32 |
| 20 | 14,390.32 |  | 119.92 | 14,510.24 |
| 21 | 14,510.24 |  | 120.92 | 14,631.16 |
| 22 | 14,631.16 |  | 121.93 | 14,753.09 |
| 23 | 14,753.09 |  | 122.94 | 14,876.03 |
| 24 | 14,876.03 |  | 123.97 | 15,000.00 |

**Period 1**

Discount on notes receivable 102.43

 Interest revenue 102.43

(12,291.14) ($\frac{.10}{12}$)

**Period 24**

Discount on notes receivable 123.97

 Interest revenue 123.97

(14,876.03) ($\frac{.10}{12}$)

Cash 15,000

 Notes receivable 15,000

**Case 12 - Revenue Recognition Over Time**

Revenue is recognized over time based on costs incurred (input method) compared to the total estimated costs. This method best measures the company’s progress in satisfying the performance obligation as it includes labour and material costs that are directly traceable to the project. The company’s engineers are also experienced in preparing reliable cost estimates as part of the fixed-bid process.

|  |
| --- |
| **Partial Income Statement – Year One** |
| Construction revenue1 | 150,000 |
| Construction costs | 125,000 |
| Gross profit | 25,000 |
| Operating expenses | 15,000 |

1

|  |  |
| --- | --- |
| Construction costs | 125,000 |
| Add: Estimated costs of completion | 625,000 |
| Total costs | 750,000 |

$\frac{125,000}{750,000}$ X 900,000 = 150,000

|  |
| --- |
| **Partial Income Statement – Year Two** |
| Construction revenue2 | 570,000 |
| Construction costs | 495,000 |
| Gross profit | 75,000 |
| Operating expenses | 30,000 |

2

|  |  |
| --- | --- |
| Construction costs incurred to date (125,000 + 495,000) | 620,000 |
| Add: Estimated costs of completion | 155,000 |
| Total costs | 775,000 |

$\frac{620,000}{775,000}$ × 900,000 = 720,000

720,000 – 150,000 = 570,000

|  |
| --- |
| **Partial Income Statement – Year Three** |
| Construction revenue3 | 180,000 |
| Construction costs | 145,000 |
| Gross profit | 35,000 |
| Operating expenses | 22,000 |

3

|  |  |
| --- | --- |
| Contract price | 900,000 |
| Less: Revenue realized to date (150,000 + 570,000) | 720,000 |
| Revenue realized | 180,000 |

**Complex EPS at Richmond**

1.

BEPS Continuing Operations = $\frac{250,000 + \left(65,000\right) \left(1- .3\right) - 24,000}{250,417}$ = $\frac{271,500}{250,417}= $1.08

(300,000) (.08) = 24,000

250,000 + (25,000) (4/12) – (50,000) (1/12) – (25,000 / 1,000) (300) (6/12) = 250,417

BEPS Net Income = $\frac{250,000 - 24,000}{250,417}$ = $\frac{226,000}{250,417}= $.90

**Stock Options**

(25,000) (5) = 125,000

125,000 / 7.50 = 16,667

25,000 – 16,667 = 8,333

**Preferred Shares**

24,000 / (50,000) (2) = .24

**Bonds**

**January 1 – June 30**

(175,000) (.10) (6/12) = 8,750

(175,000 / 1,000) (300) (6/12) = 26,250

**July 1 – December 31**

(150,000) (.10) (6/12) = 7,500

(150,000 / 1,000) (300) (6/12) = 22,500

8,750 + 7,500 = 16,250

26,250 + 22,500 = 48,750

(16,250) (1 - .3) / 48,750 = .23

**Anti-dilutive Sequencing**

**Bonds (Lowest at .23)**

= $\frac{271,500 + \left(16,250\right) \left(1- .3\right)}{250,417 + 8,333 + 48,750}$ = $\frac{282,875}{307,500}$ = .92 Dilutive

**Preferred Shares (Next lowest at .24)**

= $\frac{282,875 + 24,000}{307,500 + 100,000}$ = $\frac{306,875}{407,500}$ = .75 Dilutive

DEPS Based on Continuing Operations = $\frac{271,500 + \left(16,250\right)\left(1- .3\right) + 24,000}{250,417 + 8,333 + 48,750 + 100,000}$ = .75

DEPS Based on Net Income = $\frac{226,000 + 16,250 \left(1- .3\right) + 24,000}{250,417 + 8,333 + 48,750 + 100,000}$ = .64

**Complex EPS at Inkster**

1.

BEPS Continuing Operations = $\frac{5,850,000 + 1,650,000 - 1,086,750}{8,752,500}$ = $\frac{6,413,250}{8,752,500}= .73$

(555,000) (2.10) (6/12) + (480,000) (2.10) (6/12) = 1,086,750

8,890,000 – (150,000) (2/12) – (75,000) (3) (6/12) = 8,752,500

BEPS Net Income = $\frac{5,850,000 - 1,086,750}{8,752,500}$ $=\frac{4,763,250}{8,752,500}= $.54

**Stock Options (Dilutive – Include)**

(276,000) (6.10) / 8.50 = 198,071

276,000 – 198,071 = 77,929

**Preferred Shares**

= $\frac{1,086,750}{\left(555,000\right)\left(\frac{6}{12}\right)\left(3\right)+\left(480,000\right)\left(\frac{6}{12}\right)(3)}$ = $\frac{1,086,750}{1,552,500}$ = .70

**Bonds**

= $\frac{\left(14,500,000\right) \left(.06\right) (1 - .3)}{\left(\frac{14,500,000}{1,000}\right)(250)}$ = $\frac{609,000}{3,625,000}$ = .17

**Anti-dilutive Sequencing**

**Bonds (Lowest at .17)**

= $\frac{6,413,250 + 609,000}{8,752,500 + 77,929 + 3,625,000}$ = $\frac{7,022,250}{12,455,429}$ = .56 Dilutive

**Preferred Shares (Next lowest at .70)**

Do not include it, as it would raise DEPS after including stock options and bonds.

DEPS Based on Continuing Operations = $\frac{6,413,250 + 609,000}{8,752,500 + 77,929 + 3,625,000}$ = .56

DEPS Based on Net Income = $\frac{4,763,250 + 609,000}{8,752,500 + 77,929 + 3,625,000}$ = .43

**Complex EPS at Jasbar**

1.

BEPS Continuing Operations = $\frac{58,000 + \left(15,000\right) \left(1- .35\right) - 50,000}{101,875}$ = $\frac{17,750}{101,875}= $.17

(50,000) (1) = 50,000

100,000 – (6,000) (2/12) + (10,000) (9/12) – (50,000/1,000) (185) (6/12) = 101,875

BEPS Net Income = $\frac{58,000 - 50,000}{101,875}$ = $\frac{8,000}{101,875}= $.08

**Stock Options**

(10,000) (6) = 60,000

60,000 / 4.00 = 15,000

10,000 – 15,000 = -5,000 Not dilutive

**Preferred Shares**

50,000 / 50,000 = 1.00 Not dilutive

**Bonds**

**January 1 – June 30**

(300,000) (.12) (6/12) = 18,000

(300,000 / 1,000) (185) (6/12) = 27,750

**July 1 – December 31**

(250,000) (.12) (6/12) = 15,000

(250,000/1,000) (185) (6/12) = 23,125

18,000 + 15,000 = 33,000

27,750 + 23,125 = 50,875

(33,000) (1 - .35) / 50,875 = .42 Not dilutive

DEPS is not required as no convertible securities lower BEPS Continuing Operations.

**Complex EPS at Kamloops**

1. BEPS Continuing Operations = $\frac{90,000 + 55,000 - 75,000}{98,000}$ $= $.71

(50,000) (1.50) = 75,000

100,000 - (8,000) (7/12) + (4,000) (8/12) = 98,000

BEPS Net Income = $\frac{90,000 - 75,000}{98,000}$ $= $.15

**Stock Options**

(5,000) (4.50) = 22,500

22,500 / 6.25 = 3,600

5,000 – 3,600 = 1,400

**Preferred Shares**

75,000 / (50,000) (1) = 1.50 (not dilutive)

**Bonds**

(100,000) (.09) (1-.25) / (100,000/1,000) (120) = 6,750 / 12,000 = .56 (dilutive)

DEPS Continuing Operations = $\frac{90,000 + 55,000 - 75,000 + 6,750}{98,000 + 1,400 + 12,000}$ = .69

DEPS Net Income = $\frac{90,000 - 75,000 + 6,750}{98,000 + 1,400 + 12,000}$ = .20