Long-Term Assets

ANSWERS TO QUESTIONS FOR GROUP LEARNING

Q10-1 The term *long-term assets* describes long-life assets held by a business to produce a stream of earnings. The major groups are:
1. Tangible plant assets, such as land, buildings, or machinery.
2. Natural resources, such as oil, minerals, or forests.
3. Intangible assets, such as patents and computer software development costs.

Q10-2 a. All costs of transportation to the site of use, installation, testing, and other costs to prepare the assets for service are part of the cost of tangible plant assets.
b. Assets should be recorded at cost; this is invoice price minus discounts allowed.

Q10-3 a. A capital expenditure is the acquisition, improvement, enlargement, or renewal of useful life of an item of property, plant, and equipment. A revenue expenditure is a routine cost to keep it operating properly.
b. If the distinction between capital and revenue expenditures is not properly made, depreciation or period expense will be incorrectly recorded. This will produce an incorrect net income amount and an incorrect total asset amount.

Q10-4 Student B is correct. Depreciation is the recognition as period expense of some portion of a plant asset. Depreciation is not a valuation process. The periodic recognition of depreciation is not related to the market-value of the asset.

Q10-5 Some factors to be considered when a depreciation method is chosen would include:
1. The extent to which decline in useful life depends on the passage of time.
2. Whether the asset's contribution is more likely to benefit early years of asset life more than later years.
3. Whether the asset's contribution is directly related to the amount of use it receives or units of product produced by it.
4. The extent to which maintenance and repairs expense are likely to increase as the asset becomes older.
5. The effect that the method chosen will have on taxable income of the owner.
Q10-6  Yes, it does make a difference. The method of depreciation used determines the amount of expense assigned to each accounting period. The net income of a single accounting period reflects the method of calculating depreciation.

Q10-7  The purpose of recording depreciation is to better match revenues and expenses in an accounting period. Recording depreciation spreads the cost of plant items over the periods that they benefit.

Q10-8  
   a. The straight line method would be indicated when usefulness of a plant asset expires with the passage of time. This may be true of a building the EUL expires at a steady rate regardless of the amount of use.
   b. The units of production method is indicated when the benefits of a plant asset expire with use. An example would be an aircraft engine with EUL stated in flight hours. Benefits from the engine are extracted in direct proportion to number of hours flown.
   c. Accelerated methods would be proper if a plant item gives greater service in its early years of life than in later years. This may be the case for a computer that is the latest high-technology item at the time of purchase but is likely to be much less efficient when compared to a model available a few years later.

Q10-9  Assets held for part of a month should be depreciated to the nearest whole month. If they are acquired on or before the 15th of the month, a whole month is charged. If they are acquired on or after the 16th, no depreciation is charged for that month.

Q10-10 There is no relationship between the amount of annual depreciation expense and the cash available for equipment replacement. The act of recording depreciation does not provide cash. However because depreciation is a noncash charge against net income, the amount of cash, receivables, or other assets generated by business operations is usually greater than net income. A deliberate act of management is needed to set aside cash received from operations to form a plant replacement fund.

Q10-11  
   a. When a plant asset is exchanged as part of a purchase of a new asset, several items must be recorded. They include:
      1. Bringing the accumulated depreciation (and related expense of the traded item) up to date.
      2. Removing from the accounts the cost of the traded asset and its related accumulated depreciation.
      3. Valuing and adding the new asset to the accounts.
      4. Deciding whether there is a loss or gain on disposal and how it should be recognized.
   b. When an asset is sold, similar problems exist except that there is no new asset to record. Instead, there will be a receipt of cash or creation of a receivable to record.
Q10-12  a. *Depreciation* is the periodic assignment to expense of cost minus residual value of a tangible plant asset. *Depletion* is the assignment to inventory or cost of goods sold of a portion of a natural resource as it is extracted and prepared for sale. *Amortization* is the periodic assignment to expense (or to inventory) of the cost of an intangible asset.

b. The periodic depletion charge is determined by a production method.

Q10-13  Depletion is not an operating expense. It is first assigned to the Inventory account. Then it reduces the net income by becoming part of cost of goods sold.

Q10-14  a. Intangible assets are long-term rights or other items of value that do not have form or substance. While lacking form or substance, they provide a legal, technological, or economic advantage to the business

   b. 1. When they are recorded, the cost assigned to the asset must be determined.

   2. When they are amortized, there is the problem of determining a proper useful life over which to amortize them.

   c. A contra account is not normally used; amortization amounts are credited directly to the asset. If management desires, a contra account could be used to collect accumulated amortization.

Q10-15  a. According to the FASB, the costs of research and development performed in an entity should be debited to expense in the period in which the costs are incurred.

b. The Financial Accounting Standards Board ruled that software producers must expense costs incurred in creating a computer software product until technological feasibility has been established for the product. Technological feasibility is established upon completion of a detailed program design or working model. Thereafter, all software shall be capitalized and amortized in current and future periods.

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**SOLUTIONS TO EXERCISES**

E10-16  **Amount of Debit to Asset Account**

**LG 1**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net invoice price</td>
<td>$19,600</td>
</tr>
<tr>
<td>Transportation charges</td>
<td>570</td>
</tr>
<tr>
<td>Special paint and lights</td>
<td>400</td>
</tr>
<tr>
<td>Adding custom shelves</td>
<td>2,425</td>
</tr>
<tr>
<td>Sales tax</td>
<td>1,000</td>
</tr>
<tr>
<td><strong>Total debits to Delivery Van account</strong></td>
<td><strong>$23,995</strong></td>
</tr>
</tbody>
</table>
E10-17  Recordkeeping: An Acquisition
LG 1

GENERAL JOURNAL

Office Equipment 4,900

Accounts Payable 4,900

Purchases of office equipment recorded at discount of 2/10.

Accounts payable 4,900

Cash 4,900

Payment on account

E10-18  Recording the Cost of a New Plant
LG 1

GENERAL JOURNAL

2011
Dec. 31

Land * 175,000

Land Improvements 60,000

Building 3,500,000

Cash 3,735,000

To record purchase of land, parking lot, and building.

*$160,000 + $10,000 + $8,000 - $3,000.

E10-19  Depreciation—All Methods (Full Year)
LG 3

a.  GENERAL JOURNAL

2011
Dec. 31

Depreciation Expense−Aircraft 275,000

Accumulated Depreciation−Aircraft 275,000

($5,000,000 − $600,000) ÷ 16.

b.  GENERAL JOURNAL

2011
Dec. 31

Depreciation Expense−Aircraft 625,000

Accumulated Depreciation−Aircraft 625,000

$5,000,000 x 1/16 x 2 (Note: residual is not deducted here).
c. GENERAL JOURNAL

2011

Dec. 31 Depreciation Expense—Aircraft 121,000
  Accumulated Depreciation
  Aircraft 121,000
  \((5,000,000 - 600,000) \times 2,200/80,000.\)

E10-20 Partial-year Depreciation: Three Methods (Partial Year Plus Full Year)

LG 3

a. Straight-line Method:

<table>
<thead>
<tr>
<th>Machine</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>X = ((75,000 - 15,000) \div 5 \times \frac{1}{2})</td>
<td>6,000</td>
<td></td>
</tr>
<tr>
<td>((75,000 - 15,000) \div 5 \times 1)</td>
<td>12,000</td>
<td></td>
</tr>
<tr>
<td>Y = ((126,000 - 16,000) \div 10 \times \frac{1}{2})</td>
<td>5,500</td>
<td>11,000</td>
</tr>
<tr>
<td>((126,000 - 16,000) \div 10 \times 1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total depreciation expense</td>
<td>$11,500</td>
<td>$23,000</td>
</tr>
</tbody>
</table>

b. Sum-of-the-Years Digits Method:

<table>
<thead>
<tr>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>X = ((75,000 - 15,000) \times 5/15 \times \frac{1}{2})</td>
<td>$10,000</td>
</tr>
<tr>
<td>((75,000 - 15,000) \times 5/15 \times \frac{1}{2})</td>
<td>{}</td>
</tr>
<tr>
<td>((75,000 - 15,000) \times 4/15 \times \frac{1}{2})</td>
<td>}</td>
</tr>
<tr>
<td>Y = ((126,000 - 16,000) \times 10/55 \times \frac{1}{2})</td>
<td>10,000</td>
</tr>
<tr>
<td>((126,000 - 16,000) \times 10/55 \times \frac{1}{2})</td>
<td>}</td>
</tr>
<tr>
<td>((126,000 - 16,000) \times 9/55 \times \frac{1}{2})</td>
<td>}</td>
</tr>
<tr>
<td>Total depreciation expense</td>
<td>$20,000</td>
</tr>
</tbody>
</table>
E10-20  (continued)

c. Double Declining-balance Method:

\[
\begin{align*}
X &= \$75,000 \times 2/5 \times \frac{1}{2} \\
&= \$15,000 \\
Y &= \$126,000 \times 2/10 \times \frac{1}{2} \\
&= \$12,600 \\
&= \$22,680 \\
\text{Total depreciation expense} &= \$27,600 \quad $46,680 \\
\end{align*}
\]

E10-21  Revenue and Capital Expenditures
LG 4

a. Capital, Machinery
b. Capital, Machinery
c. Revenue, Insurance Expense
d. Capital, Building
e. Capital, Building
f. Capital, Machinery
g. Capital, Franchise
h. Capital, Accumulated Depreciation
i. Capital, Leasehold Improvements
j. Capital, Goodwill
k. Revenue, Repairs Expense
l. Revenue, Advertising Expense
m. Capital, Building

E10-22  Revision of Depreciation Expense
LG 5

2011: \((\$200,000 - \$60,000) \div 7 \text{ years} = \)$20,000 x 1/2 = $10,000

2012: $20,000.

2013: Original cost \$200,000

Deduct: Depreciation expense \$(\$10,000 + \$20,000) = \$30,000

Revised residual $53,000 $

Balance to depreciate \$117,000 \div 4.5 \text{ years} = \$26,000.$
GENERAL JOURNAL

2011
Jan. 1  Freezer  50,000
         Cash  50,000
         Installed cost of new freezer.

Dec. 31  Depreciation expense—Freezer  5,625
         Accumulated Depreciation—Freezer  5,625
         Depreciation expense for 2011.

2012
Dec. 31  Depreciation Expense—Freezer  5,625
         Accumulated Depreciation—Freezer  5,625
         Depreciation expense for 2012.

2013
Jan. 1  Accumulated Depreciation—Freezer  12,000
         Cash  12,000
         Complete overhaul

Dec. 31  Depreciation Expense—Freezer  4,575
         Accumulated Depreciation—Freezer  4,575
         Depreciation expense for 2013.

*Cost of freezer $50,000
   Deduct: Accumulated depreciation before overhaul 11,250
   Book value before overhaul 38,750
   Add: Overhaul cost 12,000
   Book value after overhaul 50,750
   Deduct: Estimated residual value 5,000
   Amount to be depreciated over 10 years 45,750
   Straight-line depreciation per year $4,575
E10-24  Sale of a Used Asset

LG 6

GENERAL JOURNAL

2011
Jul. 1 Depreciation Expense—Drilling Machinery
       Accumulated Depreciation—Drilling Machinery
       To update depreciation to date of sale.
1 Cash
   Accumulated Depreciation—Drilling Machinery
   Drilling Machinery
   Gain on Disposal of Plant Assets
   To record sale.

E10-25  Trade-in on a Similar and a Dissimilar Item

LG 6

1. GENERAL JOURNAL

2011
Apr. 2 Forklift Truck
       Cash
       Purchase of new forklift truck.
Dec. 31 Depreciation Expense—Forklift Truck
       Accumulated Depreciation—Forklift Truck
       Depreciation for 9 months in 2011.

2a. GENERAL JOURNAL

2011
Dec. 31 Forklift Truck
   Accumulated Depreciation—Forklift Truck
   Forklift Truck
   Cash
   Trade-in with nonrecognition of gain.
E10-25 (continued)

2b. GENERAL JOURNAL

2011
Dec. 31 Forklift Truck 20,000
Accumulated Depreciation—
  Forklift Truck 1,350
Loss on Disposal of Plant Assets 650
  Forklift Truck 12,000
  Cash 10,000
Trade-in with recognition of loss.

3a. GENERAL JOURNAL

2011
Dec. 31 Land 20,000
Accumulated Depreciation—
  Forklift Truck 1,350
  Gain on Disposal of Plant Assets 850
  Forklift Truck 12,000
  Cash 8,500
Trade-in with recognition of gain.

3b. GENERAL JOURNAL

2011
Dec. 31 Land 20,000
Accumulated Depreciation—
  Forklift Truck 1,350
Loss on Disposal of Plant Assets 650
  Forklift Truck 12,000
  Cash 10,000
Trade-in with recognition of loss.

E10-26 Computation of Depletion Cost
LG 7

Cost of asset $3,200,000
Deduct: Estimated residual value 200,000
Cost to be depleted $3,000,000
Depletion cost per ton
  ($3,000,000 ÷ 500,000) $6.00
Depletion cost for first year
  ($6.00 x 120,000) $720,000
E10-27  Cost Allocation for Long-term Assets
LG 2, 7, 8

a. Depreciation  
   f. Amortization  
k. N (expense as incurred)

b. N  
g. Depreciation  
l. Depreciation

c. N  
h. Depreciation  
m. Depreciation

d. Depreciation  
i. Depletion

e. Write down when goodwill is impaired  
j. N (expense as incurred)

E10-28 Amortization of Franchise
LG 8

GENERAL JOURNAL

2011  
Dec. 31  Franchise Amortization Expense  
Franchise  
Amortization for 3/4 year.  
($100,000 ÷ 8) x 3/4 year.

  9,375  

2012  
Dec. 31  Franchise Amortization Expense  
Franchise  
Amortization for full year.

  12,500  

E10-29  Amortization of Patent
LG 8

GENERAL JOURNAL

2011  
Dec. 31  Patent Amortization Cost  
Patent  
($33,000 ÷ 3) x 1/2 year.

  5,500  

2012  
Dec. 31  Patent Amortization Cost  
Patent  
($33,000 ÷ 3) x 1 year.

  11,000  

10-10
P10-30  Determining the Cost of Tangible Plant Assets
LG 1

Requirement 1.

Sales price $27,500
Deduct:  Cash discount  
($27,500 \times 0.02)  
Net sales price  
Add:  Sales taxes $1,650  
Delivery charges 70  
Installation 600  
Total asset cost $29,470

Requirement 2.

Cost of repainting van as a result of negligence (Repairs Expense) $1,300
Ordinary maintenance (Maintenance Expense) 650  
Total expenses $1,950

P10-31  Depreciation for Several Years: Three Methods
LG 3

Requirement 1.

<table>
<thead>
<tr>
<th>Balances in</th>
<th>Accumulated Depreciation Account</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building</td>
<td>Excavating</td>
</tr>
<tr>
<td>Sorting</td>
<td>Equipment</td>
</tr>
</tbody>
</table>

($900,000 - $120,000) \div 30 \times 3  $78,000
($680,000 \times 2/10 \times 1)  $136,000
($401,000 - $41,000) \times 8/36  $80,000
P10-31  (continued)

Requirement 2.

GENERAL JOURNAL

2011
Dec. 31  Depreciation Expense—Building  26,000
Accumulated Depreciation—
Building  26,000
($900,000 – $120,000) ÷ 30.

31  Depreciation Expense—Excavating
Equipment  108,800
Accumulated Depreciation
Excavating Equipment  108,800
($680,000 – $136,000) x 2/10.

31  Depreciation Expense—Sorting
Equipment  70,000
Accumulated Depreciation
Sorting Equipment  70,000
($401,000 – $41,000) x 7/36.

P10-32  Entries over the Life of a Plant Asset: SYD Depreciation
LG 1, 3, 6

GENERAL JOURNAL

2011
Jun. 5  Carpet Cleaning System  117,600
Accounts Payable  117,600
Purchased equipment at 2/10, n/30.

15  Accounts Payable  117,600
Cash  117,600
Paid June 5 liability

19  Carpet Cleaning System  8,600
Cash  8,600
Paid installation costs.

28  Carpet Cleaning System  5,000
Cash  5,000
Paid testing and debugging costs.

Jul. 1  No entry needed.

Aug. 22  Repairs Expense  800
Cash  800
Minor repairs to equipment.
P10-32 (continued)

Dec. 31  Depreciation Expense—Carpet Cleaning System  15,400
         Accumulated Depreciation—Carpet Cleaning System  15,400
         ($131,200 – $8,000) × 7/28 × 6/12

2012
Jul.  8  Repairs Expense
         Cash  900
Minor repairs to equipment.

Dec. 31  Depreciation Expense—Carpet Cleaning System  28,600
         Accumulated Depreciation—Carpet Cleaning System  28,600
         1/2 [($131,200 – $8,000) × 7/28] +
         1/2 [($131,200 – $8,000) × 6/28]

2013
Jul.  3  Depreciation Expense—Carpet Cleaning System  13,200
         Accumulated Depreciation—Carpet Cleaning System  13,200
         Updated depreciation to date of sale
         1/2 [($131,200 – $8,000) × 6/28].

3  Cash  84,000
         Accumulated Depreciation—Carpet Cleaning System  57,200
         Carpet Cleaning System  131,200
         Gain on Disposal of Plant Assets  10,000
         Sale of system at a gain.

P10-33  Exchange for Similar and Dissimilar Items
LG 6

Requirement 1.

GENERAL JOURNAL

2012
Jan.  2  Automobile (new)  86,875
         Accumulated Depreciation—Automobile (old)  8,125
         Cash  30,000
         Automobile (old)  65,000
         Trade-in with nonrecognition of gain.
Requirement 2.

GENERAL JOURNAL

2012
Jan.  2  Automobile (new)  92,000
Accumulated Depreciation—
  Automobile (old)  8,125
Loss on Disposal of Plant Assets
  Cash  40,000
  Automobile (old)  65,000
Trade-in with recognition of loss.

Requirement 3.

GENERAL JOURNAL

2012
Jan.  2  Boat (new)  92,000
Accumulated Depreciation—
  Automobile (old)  8,125
  Gain on Disposal of
  Plant Assets  5,125
  Cash  30,000
  Automobile (old)  65,000
Trade-in with recognition of gain.

P10-34  Depletion and Inventoriable Costs
LG 7

Requirement 1.

Cost of asset  $ 24,800,000
Deduct: Estimated residual value  $ 300,000
Less: Dismantling costs  100,000
Amount to be depleted  $24,600,000
Depletion cost per barrel
  ($24,600,000 ÷ 1,000,000)  $ 24.60
Depletion cost in 2011 ($24.60 x 300,000)  $ 7,380,000

Requirement 2.

Depletion cost of 300,000 barrels  $ 7,380,000
Other production costs  1,080,000
Total production costs  $ 8,460,000
Production cost per barrel
  ($8,460,000 ÷ 300,000)  $ 28.20
Cost of oil sold in 2011 ($28.20 x 185,000)  $ 5,217,000
P10-34 (continued)
Requirement 3.

Sales ($70 \times 185,000) \quad $12,950,000
Cost of oil sold \quad 5,217,000
Gross margin on sales \quad $7,733,000

Requirement 4.

December 31, 2011, inventory ($28.20 \times 115,000) \quad $3,243,000

P10-35 Revenue Expenditure or Capital Expenditure for Long-term Assets
LG 1, 4, 8

Case 1. New addition is a capital expenditure.

New addition is a tangible plant asset (a).

Amount: $900,000 + $65,000 + $5,500 + $9,000 = $979,500.

Cost or $11,300 to train employees would be expensed (revenue expenditure).

Case 2. Cost of $790,000 for research and development would be expensed (revenue expenditure).

Case 3. Cost of $520,000 for the development of software cost up to the point of technological feasibility would be expensed (revenue expenditure).

Cost of $400,000 after the point of technological feasibility would be debited to an asset account and amortized over its estimated useful life (capital expenditure).

Capitalized software costs is an intangible asset (c).

Case 4. Cost of patent purchased is a capital expenditure.

Cost of the patent is an intangible asset (c).

Remaining asset balance as of December 31, 2011, would be $372,000

\[ \left( \frac{432,000}{6 \text{ years}} \times \frac{10}{12} = 60,000; \ 432,000 - 60,000 = 372,000 \right] \]

P10-36 Analyzing Long-Term Assets for Wynn Resorts
LG 9

1. Investments in long-term assets are a very significant item for Wynn Resorts and plant net of depreciation represents 75.7% of total assets ($5,105,500,000 + $6,742,600,000).
2. Total interest cost = $260,100,000 ($172,700,000 + $87,400,000)

Times interest earned (based on total interest cost):

\[
\frac{\$210,200,000 + (60,900,000 + \$172,700,000)}{\$260,100,000} = 1.24 \text{ times}
\]

Note: In the numerator, interest expense is used because this is the amount of net interest deducted on the income statement to compute net income. For the numerator, we want to show the amount of income before deduction for interest expense and income taxes. The total interest cost was never shown or deducted on the income statement. We then divide the income before income taxes and net interest expense by total interest cost to compute times interest earned.

3. Interest expense (net of amount capitalized) on income statement = $172,700,000

Times interest earned (based on net interest expense):

\[
\frac{\$210,200,000 + (60,900,000 + \$172,700,000)}{\$172,700,000} = 1.86 \text{ times}
\]

Note: In the numerator, interest expense is used because this is the amount of net interest deducted on the income statement to compute net income. We then divide the income before income taxes and net interest expense by net interest expense to compute times interest earned.

4. The answers to parts 2 and 3 are different. The answer in part 2 is based on covering total interest cost. This answer is more correct because it uses the total amount of interest the Company must pay each year. To divide by the net interest cost is misleading because it does not show the total amount of interest payments the Company must meet each year.

P10-37 Analyzing Long-Term Assets for Las Vegas Sands Corp.

LG 9

1. Investments in long-term assets are a significant item for Las Vegas Sands. Property and plant net of depreciation represents 69.3% of total assets ($11,868,200,000 ÷ $17,114,100,000).

2. Total interest cost = $553,000,000 ($421,800,000 + $131,200,000)

Times interest earned (based on total interest cost):

\[
\frac{\$163,600,000 + (\$59,700,000 + \$421,800,000)}{\$553,000,000} = 0.36 \text{ times}
\]

Note: In the numerator, interest expense is used because this is the amount of net interest deducted on the income statement to compute net income. For the numerator, we want to show the amount of income before deduction for interest expense and income taxes. The total interest cost was never shown or deducted on the income statement. We then divide the income before income taxes and net interest expense by total interest cost to compute times interest earned.
3. Interest expense (net of amount capitalized) on income statement = $421,800,000
   
   Times interest earned (based on net interest expense):
   
   
   
   
   
   $(163,600,000) + ($59,700,000) + $421,800,000 \div $421,800,000 = 0.47 \text{ times}$
   
   Note: In the numerator, interest expense is used because this is the amount of net interest deducted on the income statement to compute net income. We then divide the income before income taxes and net interest expense by net interest expense to compute times interest earned.

4. The answers to parts 2 and 3 are different. The answer in part 2 is based on covering total interest cost. This answer is more correct because it uses the total amount of interest the Company must pay each year. To divide by the net interest cost is misleading because it does not show the total amount of interest payments the Company must meet each year.
Practice Case  (continued)

Jul. 1  Depreciation Expense—Machinery 3,380
   Accumulated Depreciation—Machinery 3,380
   Depreciation expense for 2013 ($6,760 x ½).

Jul. 1  Machinery ($102,000 – $2,900 gain) 99,100
   Accumulated Depreciation—Machinery 8,180
      Machinery 84,400
      Cash ($102,000 – $79,120) 22,880
To record exchange of training
   machine on a similar machine.

Note: A gain cannot be recognized in the case of an exchange of similar plant
assets. It is computed as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of old asset</td>
<td>$84,400</td>
</tr>
<tr>
<td>Deduct Accumulated depreciation to date</td>
<td>8,180</td>
</tr>
<tr>
<td>Book value</td>
<td>$76,220</td>
</tr>
<tr>
<td>Trade-in allowance</td>
<td>79,120</td>
</tr>
<tr>
<td>Gain on exchange (not recognized)</td>
<td>$2,900</td>
</tr>
</tbody>
</table>

SOLUTION TO BUSINESS DECISION AND COMMUNICATION PROBLEM

LG 2  Interpretation of Depreciation Note for Caterpillar, Inc

Following is a typical student response to this communications problem; actual
responses may vary in content and style but should contain as much of this basic
information as possible.

TO: Ed Time
FROM: Student
SUBJECT: Depreciation policies for Caterpillar, Inc.

The following comments respond to your questions about the depreciation policies for
Caterpillar, Inc.:
1. Caterpillar uses accelerated depreciation methods for financial reporting purposes. The
   annual report does not state specific methods used.
2. As of the year-end, the total investment in buildings, machinery, and equipment was
   $7,006 million.
LG 2 (continued)

3. As of the year-end, the total book value (cost less accumulated depreciation) was $3,397 million.
4. As of the year-end the total book value of the plant assets would be $4,030 million ($3,397 + $633) if Caterpillar, Inc. had always used the straight-line method.
5. Caterpillar, Inc., has tended to minimize reported net income for financial reporting purposes. The reason is that depreciation expense has been greater using accelerated depreciation methods than straight-line. You can view this depreciation policy as conservative, because Caterpillar minimizes reported net income and asset book value.
6. Caterpillar includes the note to point out to the reader of Caterpillar’s annual report the impact on reported profits and on net plant assets of using depreciation methods which expense the assets faster. As a result, net income reported on the income statement and net plant assets on the balance sheet are both lower than if Caterpillar had used the straight-line method.

SOLUTION TO ETHICAL DILEMMA

Depreciation Policies

LG2

Individual responses to ethical dilemmas will vary. The technical and ethical issues raised in the following response are central to this dilemma; look for them in students’ answers and be prepared to discuss them with students in class.

Changing depreciation policies is not unethical. Since depreciation is an estimate, changes in asset life and residual value may be made when information indicates the old estimates are incorrect. Changes in depreciation method can be made if management feels that the new method results in a more correct matching of revenues and expenses.

All of the proposed changes will result in lower depreciation expense and higher reported net income. The change to the straight-line method may be acceptable if most competing firms in the same industry use this method and if management feels that the straight-line method would result in a better matching of revenues and expenses. However, the changes in asset life from 5 years to 20 years and the residual values from 5% of asset cost to 25% do not appear reasonable. The period seems too long for this type of equipment and the residual value at the end of 20 years is too large. You should state your objection to these revised estimates which appear to be chosen with the sole goal of increasing reported net income.
Income Statement Responses:

1. Total revenues in 2009 ($45,015,000,000) are higher than the total for 2007 ($35,934,000,000).

2. The percent increase in total revenues from 2007 to 2009 is:
   \[25.3\% = 100 \times \frac{9,081,000,000^*}{35,934,000,000} = \frac{45,015,000,000}{35,934,000,000}\]
   Total revenues increased 25.3\% from 2007 to 2009.

3. The cost of goods sold percent was the same 75.6\% in 2007 and 2009. As a result, the gross margin percent remained the same 24.4\% in 2007 and 2009. This is neither a favorable nor an unfavorable trend.

4. The percentage of total operating expenses to total revenues increased from 18.8\% in 2007 to 20.0\% in 2009. This is unfavorable. The operating income percent decreased from 5.6\% in 2007 to 4.2\% in 2009. This is an unfavorable trend.

5. The percent of net income to total revenues decreased from 3.8\% in 2007 to 2.2\% in 2009. This is an unfavorable trend.

Balance Sheet Responses:

6. Total assets at February 28, 2009 ($15,826,000,000) are higher than the total at March 3, 2007 ($13,570,000,000).

7. The percent increase in total assets from March 3, 2007 to February 28, 2009 is:
   \[16.6\% = 100 \times \frac{2,256,000,000^*}{13,570,000,000} = \frac{15,826,000,000}{13,570,000,000}\]
   As with total revenues, total assets have increased over the three-year period.

8. The largest asset investments for the company is inventory. This item makes up 30.0\% of the company’s assets at the end of the most recent year.

9. The percent increase in inventory between 2007 and 2009 is:
   \[18.0\% = 100 \times \frac{725,000,000^*}{4,028,000,000} = \frac{4,753,000,000}{4,028,000,000}\]
   Inventories increased by 18.0\% compared to an increase in total revenues of 25.3\%. This is favorable. Inventory is increasing at a slower rate than total revenues.
10. On the balance sheet, refer to the common-size percent for total liabilities each year. The percent of liabilities has increased from 54.3% of total assets in 2007 to 70.7% in 2009. This is unfavorable.

Integrative Income Statement and Balance Sheet:
11. This company is operating more efficiently in 2009 than in 2008. We conclude this by comparing the total asset turnover for the two years which increased from 3.04 times in 2008 to 3.15 times in 2009. Each dollar of investment in assets generated a higher amount of revenues in 2009 than in 2008. This is favorable.

Ratio Analysis Responses:
12. The current ratio is lower in 2009 than in 2007.


14. For the year ended February 28, 2009, the accounts receivable turnover ratio 1 is worse this year compared to the previous year. In 2009, the accounts receivable turnover ratio 1 is 37.25 times. This is an decrease from 72.97 times in 2008. This is unfavorable.

15. For the year ended February 28, the accounts receivable turnover ratio 2 (based on year-end receivables) is worse at 24.10 times compared to the 2009 accounts receivable turnover ratio 1 (based on average receivables) at 37.25 times.

16. For the year ended February 28, 2009, the inventory turnover ratio 1 is better this year compared to the previous year. In 2009, the inventory turnover ratio 1 is 7.19 times. This is an increase from 6.98 times in 2008. This is favorable.

17. For the year ended February 28, 2009, the inventory turnover ratio 2 (based on year-end inventory) at 7.16 is worse than the 2009 inventory ratio 1 (based on average inventory) at 7.19. This is unfavorable.

18. The return on total assets (ROA) ratio is worse in 2009 than in 2008. In 2009, the ROA is 7.02%. This is a decrease from 10.69% in 2008. This is unfavorable.