Libby Chapter 8
Reporting and Interpreting Property, Plant, and Equipment;
Natural Resources; and Intangibles

Introduction

This chapter discusses three long-lived (noncurrent) assets:

- Property, Plant, and Equipment (PP&E)*
- Natural Resources*
- Intangible Assets

* PP&E and natural resources are classified as tangible assets.

1. INITIAL ACQUISITION OF LONG-LIVED ASSETS

All costs of acquiring the assets and getting them ready for use should be capitalized.

- Purchase price plus freight-in, insurance, set-up and preparation costs (which can include plant rearrangement costs and breaking in machinery) less purchase (cash) discounts

SELF-CONSTRUCTED ASSETS.
If a company chooses to self-construct long-lived assets (e.g., building) rather than purchasing, the costs of self-constructing the assets should be capitalized (direct costs and overhead). Regarding interest on debt:

- *The general rule for accounting for interest expense is that it is expensed as incurred.*
- However, ***an exception is made for self-constructed assets***. GAAP allows capitalization of interest costs during the construction period.

Thus, the ending asset's cost reflects materials, labor, overhead, and interest.

2. COST ALLOCATION METHODS SUBSEQUENT TO ACQUISITION

Once capitalized, long-live asset costs are allocated to the current & future periods.

- Exception. The cost of land is not depreciated.
- Exception. Intangible assets with indefinite lives (e.g., goodwill) are not amortized

Allocation Terminology

- Depreciation—PP&E
- Depletion—Natural Resources
- Amortization—Intangible Assets

Allocation Methods

- Straight-line
- Declining-balance (a family of methods; e.g., 200%, 150%, 125%)
- Units of production

Example. On January 1, 2015, the Sanwari Co. purchased a machine

- Total cost of $170,000
- Estimated useful life of 8 years
- Estimated salvage value of $10,000
- Estimated useful life of 19,000 hours
- Usage: 1,800 hours in 2015 and 1,600 hours in 2016

Compute depreciation expense using the straight-line, 200% (double) declining balance, and units-of-production methods for 2015 and 2016.

Straight-line depreciation

2015 depreciation = (170,000 – 10,000) ÷ 8 = 20,000
2016 depreciation = 20,000

200% declining-balance

2015 depreciation = (170,000 – 0) x 200% x (1÷ 8) = 42,500
2016 depreciation = (170,000 – 42,500) x 200% x (1÷ 8) = 31,875

Units of Production Method

(170,000 – 10,000) / 19,000 = 8.9474 per hour

2015 depreciation = 1,800 x 8.9474 = 16,105
2016 depreciation = 1,600 x 8.9474 = 14,316

3. COSTS INCURRED SUBSEQUENT TO ACQUISITION

Costs are either **expensed** (revenue expenditure) or **capitalized** (capital expenditure)

Capitalize: expenditure increased the useful life, utility, effectiveness
- Increases the asset's depreciation basis

Expense: expenditure is necessary to maintain and use the asset
- Does not increase the asset's depreciation basis

Accountants use experience and judgment in making these decisions.

Example. For example, assume that the Walzer Co. purchased a machine on January 1, 2012 at a cost of $95,000, with an estimated useful life of 10 years and no estimated salvage value.
- On January 1, 2015, the book value would be $95,000 - $28,500 accumulated depreciation (3 years at $9,500 per year--2012, 2013, and 2014) = $66,500.
- In January 2015 the asset had a major repair costing $30,000 that is capitalizable.

First Assumption. Assume that the expenditure ***increases the estimated useful life*** from 10 years overall to 14 years overall (i.e., the machine will last 8 more years).

Assets	=	Liabilities	+	Equity
↓ 30,000 Cash ↑ 30,000 Machinery				

January 2015 Entry to Record Major Repair		
Machinery	30,000	
Cash		30,000

Note: carrying value now 66,500 + 30,000 = 96,500 = 125,000 – 28,500

2015 Depreciation Annual AJE		
Depreciation expense	8,773	
Accumulated depreciation		8,773

96,500 / 11 (remaining useful life at January 1, 2015) = 8,773

Note that the depreciation rule for 2015 is to *depreciate the remaining depreciable cost over the remaining useful life*.

Second Assumption. Assume instead that the estimated useful life remains 10 years but the major repair *increases the asset's efficiency*.

Assets	=	Liabilities	+	Equity
↓ 30,000 Cash ↑ 30,000 Machinery				

January 2015 Entry to Record Major Repair		
Machinery	30,000	
Cash		30,000

Note: carrying value now 66,500 + 30,000 = 96,500 (125,000 – 28,500)

2015 Depreciation Annual AJE		
Depreciation expense	13,786	
Accumulated depreciation		13,786

96,500 / 7 (remaining useful life at January 1, 2015) = 13,786

Note: under both scenarios, the January 1, 2015 carrying value is increased from $30,000 to $96,500.

4. DISPOSITION OF LONG-LIVED ASSETS

- The asset is depreciated to the date of disposition.
- the asset's net book value is written off,
- the consideration received is recorded,
- a gain (consideration > book value) or loss (consideration < book value) is recognized.

Example. A machine has a January 1 book value of $12,500,000 (cost) - $4,000,000 (accumulated depreciation) = $8,500,000. The asset is sold on May 1 for $6,200,000. Depreciation from January 1 – May 1 (which has not been recorded) is $475,000).

Assets	=	Liabilitie	+	Equity
↓ 475,000 Accumulated Depreciation				↓ 475,000 Depreciation Expense

Note: accumulated depreciation now – 4,000,000 + 475,000 = 4,475,000
Book value = 12,500,000 – 4,475,000 = 8,025,000

Assets	=	Liabilitie	+	Equity
↓ 12,500,000 Machinery ↑ 4,475,000 Acc Depreciation ↑ 6,200,000 Cash				↓ 1,825,000 loss on disposition

Cash 6,200,00 – book value 8,025,000 = loss 1,825,000

May 1		
Depreciation expense	475,000	
Accumulated depreciation		475,000
Cash	6,200,000	
Accumulated depreciation	4,475,000	
Loss on sale of asset	1,825,000	
Machinery		12,500,000

Accounts in T Account Form

Property, Plant, & Equipment

Beginning balance Purchases (cost of assets purchased)	Dispositions (original cost of assets disposed) (1)
Ending Balance	

Accumulated Depreciation

	Beginning balance Depreciation expense
Accumulated Depreciation on assets disposed(1)	
	Ending Balance

(1) Cost – accumulated depreciation = **book value of asset sold**.

Sales price
Less: book value of asset sold (1)
= Gain (Loss) on sale of asset

5. IMPAIRMENT ASSESSMENT

The test for long-lived asset impairment is a two-step process, as follows:

1. **Recoverability Test**. Compute the *future estimated undiscounted cash flows* expected to be generated by the asset.
   - If the undiscounted cash flows exceed the asset's net book value, (i.e., estimated future cash lows > book value) then *no impairment is deemed to have occurred*.
   - If the undiscounted cash flows is less than the asset's net book value (i.e., estimated future cash flows < book value), then *an impairment is deemed to have occurred*.
2. **Computation of Impairment.** If an impairment is deemed to have occurred, the asset is written down to its estimated fair market value.
   - **Impairment =** carrying value **–** fair value

Goodwill impairment is a separate test, and is beyond the scope of this course.

Impairment Examples. Consider the following cases:

	Case 1	**Case 2**	**Case 3**
Net book value	$2,000,000	$17,000,000	$34,000,000
Estimated future cash flows	$4,500,000	$17,750,000	$28,000,000
Estimated fair value	$3,500,000	$14,600,000	$22,000,000
Impairment loss	No impairment	No impairment	Impairment = 34,000,000 – 22,000,000 =

- *Impairment losses are used in the computation of operating income.*
- *Impairment losses do not affect cash*

6. GOODWILL

We discuss how Goodwill is recognized in Appendix E when we cover acquisitions of other companies.

- Goodwill is considered an *intangible asset with an indefinite life*
- Goodwill *is not amortized*
- Goodwill is subject to impairment testing.
- *Goodwill Impairment Testing follows a slightly different process,* ***and it is beyond the scope of this course.***

7. SPECIAL TREATMENT

Research & Development

- R&D costs are expensed as incurred
- The policy provides consistency across companies
- Once R&D is completed and a viable product emerges, then costs can be capitalized related to that project.

RATIO ANALYSIS

A key ratio introduced in Chapter 8 is Fixed Asset Turnover (fixed asset turnover ratio).

$$\textbf{Fixed Asset Turnover} = \frac{\text{Net Sales } **}{\text{Average Net Fixed Assets } *}$$

*net of accumulated depreciation. This amount is reported on the balance sheet.
** use ***total operating revenues*** if net sales are not reported.

This *ratio is an effectiveness measure*. It represents the **amount of net sales per dollar of fixed asset investment**.

STATEMENT OF CASH FLOWS

Several aspects of this chapter affect cash flows and the statement of cash flows:

Operating Activities

- **Depreciation** (plant and equipment), **depletion** (natural resources), **amortization** (intangible assets), and **impairment charges** are all **NONCASH expenses**. They are added back to net income in the operating activities section (indirect method) in the statement of cash flows.
- **Losses (gains)** on the sale of long-lived assets are added to (subtracted from) net income in the operating activities section (indirect method) in the statement of cash flows because they are not related to operating activities.

Investing Activities

- Purchases of long-lived assets are shown as a cash outflow in the investing activities section of the statement of cash flows.
- Sales of long-lived assets are shown as a cash inflow in the investing activities section of the statement of cash flows.

***Note**: asset purchases and asset sales may not be netted together*. Total purchases are shown as an outflow, and total sales are shown as an inflow

The following partial Statement of Cash Flows demonstrates how the major transactions in this chapter are presented.

Statement of Cash Flows
Operating Activities
Net Income
Adjustments to net income: Add (Subtract)
Depreciation, depletion, amortization expense
Impairment charges
Losses (gains) on the sale of long-lives assets
Investing Activities
Proceeds from sales of long-lived assets
(Purchases of long-lived assets)

Note: because the amount of depreciation appears in the operating activities section as an amount that is added, some individuals talk about depreciation being a source of cash.

- This is not a true statement.
- Depreciation, depletion, amortization, and impairment charges are noncash expenses.
- The amounts are added back because they were subtracted in computing net income.
- Because the operating activities section starts with the amount of net income (which was reduced by noncash expenses), adding back noncash expenses "cancels out" the effect of the noncash expenses on net income, thus adjusting toward the correct cash flow amount.

Example.

Operating Activities	
Net Income	$45,000,000
Adjustments to reconcile from Net Income to Cash Flow From Operations	
Depreciation expense, depletion, and amortization expense	3,250,000
Impairment charges	1,400,000
Gain on sale of fixed asset	(300,000)
…	
Net cash flow from operating activities	
Investing Activities	
Purchases of long-lived assets	(7,250,000)
Proceeds from sales of long-lived assets	4,500,000

An interesting point is that the amount of depreciation expense is almost never reported in the income statement. Rather, to find depreciation expense, look at the statement of cash flows.