

Plant Assets

LONG-TERM ASSETS

Long-term assets are assets that:

- A. have a useful life > one year
- B. are used in the operation of the business
- C. are not intended for resale to customers

Assets such as land and buildings that are not being used in the normal course of business should be classified as long-term investments.

Property, Plant and Equipment is the balance sheet classification for **tangible assets**, which have physical substance, such as land, buildings and equipment, and **natural resources**.

Intangible Assets is the balance sheet classification for assets that do not have physical substance, such as patents, trademarks, goodwill, copyrights, leaseholds, franchises, and organization costs.

The allocation of costs to different accounting periods is called **depreciation** in the case of plant and equipment, **depletion** in the case of natural resources, and **amortization** in the case of intangible assets. Because land has an unlimited useful life, its cost is never converted into an expense.

The unexpired portion of a plant asset's cost is called **carrying value**, or book value. It is calculated by subtracting accumulated depreciation from original cost.

Costs of Long-Term Assets

The cost of a long-term asset includes the purchase price, freight charges, insurance while in transit, installation, and any other cost involved in acquiring the asset and getting it ready to use.

When land is purchased, the Land Account should be debited for the price paid for the land, real estate commissions, lawyer's fees, and such expenses as back taxes assumed. In addition the following costs should be included: draining, clearing, and grading costs; cost (less salvage value) for tearing down an existing building.

Land improvements, such as driveways, parking lots, and fences, are subject to depreciation and require a separate Land Improvements account.

When long-term assets are purchased for a lump sum, the cost should be divided among the assets acquired in proportion to their appraisal values.

Depreciation

Residual Value (also called salvage value or disposal value) = the estimated value at the end of the disposal date.

Depreciable Cost = asset's cost less its residual value.

Estimated useful life = can be measured in time or in units.

Depreciation = the allocation of the cost (less residual value) of a tangible asset to the periods benefited by the asset. It does NOT refer to the physical deterioration or the decrease in market value of the asset. Tangible assets have limited useful lives because of **physical deterioration** and **obsolescence**.

Depreciation Methods

Straight-Line = the depreciable cost is spread evenly over the life of the asset. It is computed as follows:

$(\text{Cost} - \text{Residual Value}) / \text{Estimated Useful Life}$

Production = depreciation is based on use of the asset in units. It is calculated as follows:

$(\text{Cost} - \text{Residual Value}) / \text{Estimated Units of Useful Life}$

Double-Declining Balance = this *accelerated method* assigns more depreciation in the first year and less in succeeding years. This method is justified by the matching rule because it assigns high depreciation to the most productive years. It is computed as follows:

$[2 \times (\text{Yearly straight line depreciation/depreciable cost})] \times \text{existing carrying value}$
Under this method, depreciation cannot continue passed the disposal value of the asset.

Purchase of a Plant Asset

All expenses paid to purchase, move, install, and generally get a plant asset into working order are included in the cost of the plant asset. It is recorded at cost in the ledger with an entry in the journal such as:

debit: office equipment
credit: cash

The plant asset account will ALWAYS reflect the original cost of the asset.

Disposal of Plant Assets

When an asset is still in use after it has been fully depreciated, no more depreciation should be recorded. Disposal occurs when the asset is discarded, sold, or traded in.

The accumulated depreciation account should be brought up to date prior to disposal (this includes partial year depreciation).

Disposal can occur in one of three ways:

1. Discarded Plant and Equipment

DEBIT: Accumulated Depreciation, [Asset]

CREDIT: [Asset]

If the asset has not been totally depreciated then Loss on Disposal of [Asset] should be debited.

2. Sold for Cash

DEBIT: Cash

DEBIT: Accumulated Depreciation, [Asset]

CREDIT: [Asset]

If the cash received is less than the carrying value of the [Asset], then Loss on the Sale of [Asset] is debited as well. If the cash received is greater than the carrying value, then Gain on the Sale of [Asset] is credited.

3. Exchanged for another asset

When an asset is traded for a similar one, the gain or loss is computed first, as follows:

Trade-In allowance -- Carrying Value = Gain (Loss) on trade-In

If there is a loss in the exchange, the loss is recorded as follows:

DEBIT: [ASSET] (new)

DEBIT: Loss on Exchange of Assets

DEBIT: Accumulated Depreciation, [ASSET]

CREDIT: [ASSET] (old)

CREDIT: Cash

If there is a gain on the exchange, the gain is not reported as a revenue immediately. This is because the conservative principle requires that assets be reported at their most conservatively estimated value. The **Cost Basis** of a new asset is reported when journalizing exchanges of similar assets instead of reporting any gain achieved. It is calculated by adding the carrying value of the old asset to the cash paid in the exchange.

DEBIT: [ASSET] (new at cost basis)

DEBIT: Accumulated Depreciation, [ASSET]

CREDIT: [ASSET] (old)

CREDIT: Cash

Capital VS. Revenue Expenditures

Capital Expenditures = payments for the purchase or expansion of long-term assets. It will benefit future periods.

Revenue Expenditures = payments for repairs, maintenance, fuel, and anything else necessary to maintain and operate the plant and equipment. It is charged as an expense in the period in which it is incurred because it benefits only the current period/.

Treating a capital expenditure as a revenue expenditure, or vice versa, can result in a mismatching of revenues and expenses.

Betterments & Repairs

A **Betterment** is an improvement that makes a plant asset more efficient or productive. Because betterments may benefit future periods, its cost is debited to the asset account as a capital expenditure.

Asset \$

Cash \$

In contrast, an **ordinary repair** is expenditure to keep an asset in normal, good operating condition. Because this expenditure will not benefit future periods or must be repeated frequently, its cost is treated as a revenue expenditure, which is charged as an expense in one period only.

_____ Expense \$

Cash \$

Finally, an **extraordinary repair** is an expenditure that will extend the plant asset's useful life beyond its original estimate. Like betterments, they are considered capital expenditures. The asset's useful life can be extended either by debiting the asset account or by debiting the asset's accumulated depreciation account (thereby reversing some of the effects of past depreciation).

Asset \$

Cash \$

Natural Resources

Natural resources are tangible assets in the form of valuable substances that can be cut, pumped, or mined and sold. They include standing timber, oil and gas fields, and mineral deposits.

Depletion refers both to the exhaustion of the resource and to the allocation of a natural resource's cost to accounting periods based on the amount extracted in each period. Depletion for each year is calculated as follows:

$$[(\text{Cost} - \text{Residual value}) / \text{units available}] \times \text{units extracted \& sold during the period}$$

Assets that are acquired in conjunction with the natural resource, and that cannot be used after the natural resource is depleted, should be depreciated on the same basis as depletion is computed.

DEBIT: Depletion Expense, [ASSET]

CREDIT: Accumulated Depletion, [ASSET]

Intangible Assets

Intangible Assets are long-term assets that have no physical substance but represent certain rights and advantages to their owner. An intangible asset should be written off over its useful life through **amortization**. Examples include: patent, copyright, leasehold, leasehold improvements, trademark, brand name, franchise, license, goodwill

Research and Development involve developing new products, testing existing ones, and doing pure research. Costs associated with these activities should be charged as expenses in the period incurred.

The cost to develop computer software that will be sold or leased to others should be treated as research and development up to the point that a working program has been developed. At that point, software production costs become capital expenses to be amortized over the life of the asset.

Goodwill refers to a company's ability to earn more than is normal for its particular industry. Goodwill should be recorded only when a company is purchased. It equals the excess of the purchase cost over the fair market value of the net assets if purchased separately. Once recorded, it should be amortized over its useful life.

DEBIT: Amortization Expense, [ASSET]

CREDIT: [ASSET]