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chapter 11

Advanced PP&E Issues/ Natural Resources/Intangibles

Your goals for this “advanced PP&E issues, natural resources, and intangibles” chapter are to learn about:

- The accounting for costs incurred subsequent to asset acquisition.
- Appropriate methods to measure and record the disposal of property, plant, and equipment.
- Accounting for asset exchanges.
- Rules for recording asset impairments.
- Natural resource accounting and depletion concepts.
- Intangible asset accounting and amortization concepts.

PP&E COSTS SUBSEQUENT TO ASSET ACQUISITION

Think about an automobile. The vehicle must be fueled, insured, and maintained. Maintenance will include a variety of items like washing, oil and lube, tires, wiper blades, brake jobs, tune-ups, engine overhaul, body damage repair, and on and on. Cars are not unique; most items of PP&E will require substantial ongoing costs to keep them in good order. The accounting rules for such costs are to treat them as “capital expenditures” (i.e., put them on the balance sheet as an asset of some type) if future economic benefits result from the expenditure. Future economic benefits occur if the service life of an asset is prolonged, the quantity of services expected from an asset are increased, or the quality of services expected from an asset are improved. Expenditures not meeting at least one of these criteria should be accounted for as a “**revenue expenditure**” and be expensed as incurred. Judgment is again required in applying these rules.

A literal reading of those rules might lead you to believe that routine maintenance would be capitalized. After all, putting fuel in a car does “extend its service life;” without fuel its service life would end. But that interpretation would be a misconstruing of the intent of the rule. Specifically, it is intended that ongoing costs necessary to maintain the normal operating condition are expensed as incurred. These costs are simply referred to as normal “repair and maintenance” expenditures.

RESTORATION AND IMPROVEMENT

A delivery truck may have a perfectly good frame, but the engine has many miles of use and is in need of **replacement**. In essence, the replacing of the engine represents a “restoration” of some of the original condition (akin to “undepreciating” a portion of the truck). Restoration and improvement type costs are considered to meet the conditions for capitalization. The journal entry to reflect this restoration is:



5-15-X5	Accumulated Depreciation		16,000	
	Cash			16,000
	<i>Paid \$16,000 to replace the engine on delivery truck</i>			

Notice that the above debit is to Accumulated Depreciation. The effect is to increase the net book value of the asset by reducing its accumulated depreciation on the balance sheet. This approach is perfectly fine for “restoration” expenditures. However, if you are “improving” the asset beyond its original condition (sometimes termed a “**betterment**”), such costs would be capitalized by debiting the asset account, as follows:

5-15-X5	Equipment		16,000	
	Cash			16,000
	<i>Paid \$16,000 to add refrigeration equipment not previously installed on the truck</i>			

DISPOSAL OF PP&E

Assets may be abandoned, sold, or exchanged. In any case, it is first necessary to fully update all depreciation calculations through the date of disposal. Then, and only then, would the asset disposal be recorded.

If the asset is simply being scrapped (abandoned), the journal entry entails only the elimination of the cost of the asset from the books, removing the related accumulated depreciation, and recording a loss to balance the journal entry. This loss reflects the net book value that was not previously depreciated:

6-30-X3	Accumulated Depreciation		75,000	
	Loss		25,000	
	Equipment			100,000
	<i>Abandoned equipment costing \$100,000. The equipment was 75% depreciated on the date of disposal.</i>			

On the other hand, an asset may be disposed of by sale, in which case the journal entry would need to be modified to include the proceeds of the sale. Assume the above asset were sold for \$10,000. Logically, the loss would be reduced by this amount, and the entry would be as follows:

6-30-X3	Accumulated Depreciation		75,000	
	Loss		15,000	
	Cash		10,000	
	Equipment			100,000
	<i>Sold equipment costing \$100,000 for \$10,000. The equipment was 75% depreciated on the date of sale.</i>			

While the journal entry may be sufficient to demonstrate the loss calculation, you might also consider that an asset with a \$25,000 net book value (\$100,000 cost minus \$75,000 accumulated depreciation) is being sold for \$10,000 -- which gives rise to the loss of \$15,000.

Conversely, what if this asset were sold for \$30,000? Here is the entry for that scenario:

6-30-X3	Accumulated Depreciation	75,000	
	Cash	30,000	
	Gain		5,000
	Equipment		100,000
	Sold equipment costing \$100,000 for \$30,000. The equipment was 75% depreciated on the date of sale.		

ACCOUNTING FOR ASSET EXCHANGES



You may have bought a new car and part of what you gave to obtain the new car was a “trade in” of a different car. This would be a classic **“exchange” transaction**. In business, equipment is often exchanged (e.g., an old copy machine for a new one). Sometimes land is exchanged. Exchanges are often motivated by tax rules because neither company may be required to recognize a taxable event on the exchange; quite different than the tax outcome of an outright sale. Whatever the motivation behind the transaction, the accountant is again pressed to measure and report the event.

COMMERCIAL SUBSTANCE

The accounting rules for exchanges once hinged on whether swapped assets were *similar or dissimilar*. However, in a move to establish international accounting harmony, the FASB has adopted a global view that all exchanges that have **“commercial substance”** (future cash flows of the entity are expected to change because of the exchange) should be accounted for at fair value.

FAIR VALUE APPROACH

This approach will ordinarily result in recognition of a gain or loss because the fair value will typically differ from the recorded book value for the swapped assets. There is deemed to be a culmination of the earnings process when assets are swapped -- one productive component is liquidated and another is put in its place. There are many possible scenarios:

Example A: Loss Implied

Company A gives an old truck (\$1,000,000 cost, \$750,000 accumulated depreciation) for a boat. The fair value of the old truck is \$150,000 (which is also deemed to be the fair value of the boat). The boat should be recorded at fair value; since that amount is less than the net book value of the old truck, a loss is recorded (for the difference):



6-30-X3	Accumulated Depreciation (old)	750,000	
	Loss	100,000	
	Equipment (new)	150,000	
	Equipment (old)		1,000,000
	To remove all accounts related to the old truck, set up the new boat at its fair value, and record the balancing loss.		

Example B: Gain Implied

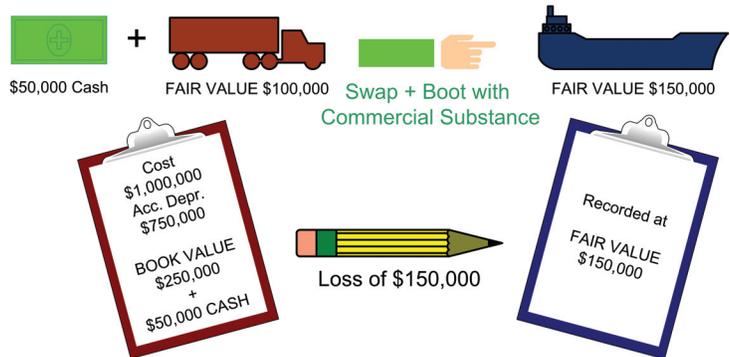
Company A gives an old truck (\$1,000,000 cost, \$750,000 accumulated depreciation) for a boat. The fair value of the old truck is \$350,000 (which is also deemed to be the fair value of the boat). The boat should be recorded at fair value; since that amount is more than the net book value of the old truck, a gain is recorded (for the difference):



6-30-X3	Accumulated Depreciation (old)	750,000	
	Equipment (new)	350,000	
	Gain		100,000
	Equipment (old)		1,000,000
	<i>To remove all accounts related to the old truck, set up the new boat at its fair value, and record the balancing gain.</i>		

BOOT

Exchange transactions are oftentimes accompanied by giving or receiving "boot." Boot is the term used to describe additional monetary consideration that may accompany an exchange transaction. Its presence only slightly modifies the above accounting by adding one more account (typically Cash) to the journal entry. For instance, assume Example A is amended to add the following facts: Company A also gave \$50,000 cash along with the old truck, because the old truck was only worth \$100,000:



6-30-X3	Accumulated Depreciation (old)	750,000	
	Loss	150,000	
	Equipment (new)	150,000	
	Cash		50,000
	Equipment (old)		1,000,000
	<i>To remove all accounts related to the old truck and cash, set up the new boat at its fair value, and record the balancing loss.</i>		

Notice that this entry has an added credit to Cash reflecting the additional consideration. The offsetting loss has increased to \$150,000. The loss is the balancing amount, and reflects that \$300,000 of consideration (cash (\$50,000) and an old item of equipment (\$1,000,000 - \$750,000 = \$250,000)) was swapped for an item worth only \$150,000. Had boot been received, the cash would have instead been debited (and a smaller loss, or possibly a gain, would be recorded to balance the entry).

EXCHANGES LACKING COMMERCIAL SUBSTANCE

Some exchanges may not have commercial substance. For example, a car dealer may have an oversupply of red cars and not enough green ones. To rebalance inventory, they swap red for green with another dealer; no significant change in cash flows is expected because of this trade. In this case, the exchange lacks “commercial substance,” and no gain is to be recorded. The green cars are simply recorded at the cost of the red cars (a loss might be recorded if impairment is suggested). If an exchange lacking commercial substance also entails the receipt of boot, a proportionate amount of gain in relation to the cash portion of the deal might be recognized; this situation is usually covered in more advanced courses.

ASSET IMPAIRMENT

When the carrying amount of a long-lived asset (or group of assets as appropriate) is not recoverable from its expected future cash flows, it is deemed to be “**impaired.**” That is to say, the owner of the asset no longer expects to be able to generate returns of cash from the asset sufficient to recapture its recorded net book value. When this scenario occurs, a loss must be recognized for the amount needed to reduce the asset to its fair value (i.e., debit loss and credit the asset). The downward revised carrying value will then be depreciated over its remaining estimated life. Like other changes in estimates, this is a “prospective change,” and no prior periods are restated.

Obviously, the measurements of impairment involve subjective components and require quite a bit of judgment. When the Financial Accounting Standards Board came up with these rules, they gave some guidance. Factors such as the following should be taken into account in considering whether an impairment exists: there has been a significant decrease in market value of an asset, the physical condition of the asset has declined unexpectedly, the asset is no longer being used as intended, legal or regulatory issues have impeded the asset, cost overruns are associated with the asset’s acquisition, the overall business seems threatened by unsuccessful performance, or the asset is now expected to be disposed of ahead of schedule.

TAKING A “BIG BATH”

This terminology is sometimes used to characterize significant one-time impairment losses. You may see this occur when a business has gone through a significant down-period and is struggling to regain its footing. Coincident with the restructuring, numerous assets may be deemed impaired and their carrying value reduced. Management has some degree of incentive to engage in this “bath.” Why? Given that the write-down will produce a loss, isn’t this something that management might wish to avoid? Well, the logic goes like this -- things are already bad, so where is the harm? And, more to the point, future periods’ income will be buoyed by this action because the write-off will leave less assets that will need to be depreciated in the future. The reduction in future expenses increases the chances of painting a return to profitability. Memories are short, and management may hope the bath will be forgotten once profitability is restored.



NATURAL RESOURCES



Oil and gas reserves, mineral deposits, thermal energy sources, and standing timber are just a few examples of **natural resource** assets that a firm may own. There are many industry-specific accounting measurements attributable to such assets. As a general rule, natural resources are initially entered in the accounting records at their direct cost plus logically related items like legal fees, surveying costs, and exploration and development costs. Once the cost basis is

properly established, it must be allocated over the periods benefited through a process known as “**depletion**.” Think of it this way: depletion is to a natural resource as depreciation is to property, plant, and equipment.

DEPLETION CALCULATIONS

The cost of a natural resource (less any expected residual value) must be divided by the estimated units in the resource deposit; the resulting amount is depletion per unit. If all of the resources extracted during a period are sold, then depletion expense equals depletion per unit times the number of units extracted and sold. If a portion of the extracted resources are unsold resources, then the cost of those units (i.e., number of units times depletion per unit) should be carried on the balance sheet as inventory.

To illustrate, assume that a mine site is purchased for \$9,000,000, and another \$3,000,000 is spent on developing the site for production. Assume the site is estimated to contain 5,000,000 tons of the targeted ore. At completion of the operation, the site will be water flooded and sold as a recreational lake site for an estimated \$2,000,000. The depletion rate is \$2 per ton, with the calculations shown at right:

Initial cost	\$ 9,000,000
Development cost	3,000,000
Less: Estimated residual value	<u>(2,000,000)</u>
Depletable base	\$ 10,000,000
Divided by estimated units	<u>÷ 5,000,000</u>
Depletion per ton	\$ 2

If 1,000,000 tons of ore are extracted in a particular year, the assigned cost would obviously be \$2,000,000. But where does that cost go? If 750,000 tons are sold and the other 250,000 tons are simply held in inventory of extracted material, then \$1,500,000 would go to Cost of Goods Sold and the other \$500,000 would go to the balance sheet as inventory. A representative entry follows:

12-31-X8	Inventory	500,000	
	Cost of Goods Sold	1,500,000	
	Natural Resource (or accumulated depletion)		2,000,000
	<i>To record annual depletion charge reflecting assignment of depletion cost to inventory (250,000 X \$2) and cost of goods sold (750,000 X \$2)</i>		

EQUIPMENT USED TO EXTRACT NATURAL RESOURCES

Property, plant, and equipment used to extract natural resources must be depreciated over its useful life. Sometimes the useful life of such PP&E is tied directly to the natural resource life, even though its actual physical life is much longer. For example, if a train track is built into a mine, the track is of no use once the mine closes (even though it could theoretically still carry a train for a much longer period). As a result, the track would be depreciated over the life of the mine. Conversely, the train that runs on the track can be relocated and used elsewhere; as such it would likely be depreciated over the life of the train rather than the life of the mine.

INTANGIBLES

The defining characteristic of an intangible is the lack of physical existence. Nevertheless, such assets contribute to the earnings capability of a company. Examples include patents, copyrights, trademarks, brands, franchises, and similar items. A company develops many such items via ongoing business processes, and those internally developed intangibles may not appear on the corporate accounts. For example, GAAP prohibits recording research and development expenditures as assets; nevertheless, significant intangible rights and benefits may emanate from such activities. Those intangible benefits represent an invisible asset of the company.



On the other hand, intangibles may be purchased from another party. For example, one company may need to utilize technology embedded in a patent right belonging to someone else. When intangibles are purchased, the cost is recorded as an intangible asset. When a purchased intangible has an *identifiable* economic life, its cost is “amortized” over that useful life (amortization is the term to describe the allocation of the cost of an intangible -- just as depreciation describes the allocation of the cost of PP&E). Some intangibles have an *indefinite* life and those items are not amortized; instead, they are periodically evaluated for impairment. If they are never found to be impaired, they will permanently remain on the balance sheet. The unamortized/unimpaired cost of intangible assets is positioned in a separate balance sheet section immediately following Property, Plant, and Equipment.

AN AMORTIZATION EXAMPLE

Assume that Mercury Pharmaceutical purchased a patent for \$50,000, estimating its useful life to be five years. The appropriate entries are:

1-1-X1	Patent	50,000	
	Cash		50,000
	<i>Paid \$50,000 to purchase a patent</i>		
12-31-XX	Amortization Expense	10,000	
	Patent		10,000
	<i>To record annual amortization expense (\$50,000/5 years)</i>		

Unlike PP&E, notice that the above annual amortization entry credits the asset account directly; there is no separate accumulated amortization account for intangible assets.

AN IMPAIRMENT EXAMPLE

Assume that Music Download Service, Inc., purchased the internet domain name “notesthatfloats.com” for \$50,000, estimating it to have an indefinite life. The Domain Name would be recorded at its initial cost, and not be subjected to annual amortization. However, should a periodic review (conducted at least once each year) reveal that the fair value of the asset is no longer at least \$50,000, it will be necessary to record a loss and reduce the asset.

1-1-X1	Domain Name	50,000	
	Cash		50,000
	<i>Paid \$50,000 to purchase a domain name</i>		
9-30-X3	Loss	25,000	
	Domain Name		25,000
	<i>Internet “bust” caused the fair value of purchased domain name to be reduced by half</i>		

SOME SPECIFIC INTANGIBLES

Patents give their owners exclusive rights to use or manufacture a particular product. The cost of a patent should be amortized over its useful life (not to exceed its legal life of 20 years). Importantly, the cost of a patent does not include the research and development costs incurred in seeking the knowledge necessary for the patent. The amount included in the Patent account includes only the cost of a purchased patent and/or incidental costs related to the registration of a patent (like legal fees).



Copyrights provide their owners with the exclusive right to produce or sell an artistic or published work. A copyright has a legal life equal to the life of the creator plus 70 years; the economic life is usually shorter. The economic life is the period of time over which the cost of a copyright should be amortized.

Franchises give their owners the right to manufacture or sell certain products or perform certain services on an exclusive or semi-exclusive basis. The cost of a franchise is reported as an intangible asset, and should be amortized over the estimated useful life.

Trademarks/brands/internet domains are another important class of intangible assets. Although these items have fairly short legal lives, they can be renewed over and over. As such, they have an indefinite life.

Goodwill is a unique intangible asset. Remember from Chapter 9, that goodwill is the excess of the purchase price paid for another company over the fair value of the identifiable tangible assets acquired. Such excess may be paid because of the acquired company's outstanding management, earnings record, or other similar features. Goodwill is deemed to have an indefinite life.