19. 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.

19.1 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	(2,000,000)
Depletable base	$ 10,000,000
Divided by estimated units	÷ 5,000,000
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
	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)			

19.2 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.