Long-Term Assets Exercises II

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Problem 1

WasatchBank recently held an auction to dispose of various assets it had obtained through foreclosures and other loan settlements. Representatives of Aragon Semi Conductors attended the auction to bid on an abandoned manufacturing plant that WasatchBank included in the sale. The auction brochure listed the manufacturing plant as including all land, buildings, and equipment. The brochure indicated that an independent appraisal had been conducted and that land was separately valued at $3,500,000, the building at $7,000,000, and the equipment at $14,500,000. This information is believed to be reasonably accurate and fair.

Aragon Semi Conductors wanted the site for a recycling business it planned to start at the location. All of the equipment would be used in this new operation. The minimum bid price was set at $16,250,000. As it turned out, the auction was poorly attended. Aragon was the only bidder on this property, and was fortunate to acquire the property at the opening bid minimum.

Determine the correct cost allocation to the land, buildings, and equipment, and prepare a journal entry to reflect this acquisition.

Worksheet

GENERAL JOURNAL			
Date	**Accounts**	**Debit**	**Credit**

Solution

Note that the assets were acquired at 65% of fair value ($16,250,000/$24,500,000):

	Fair Value	Allocation @ 65% of Fair Value
Land	$ 3,500,000	$ 2,275,000
Building	7,000,000	4,550,000
Equipment	14,500,000	9,425,000
	$ 25,000,000	$ 16,250,000

GENERAL JOURNAL			
Date	**Accounts**	**Debit**	**Credit**
	Land	2,275,000	
	Building	4,550,000	
	Equipment	9,425,000	
	Cash		16,250,000
	To record the lump sum purchase of land, building, and equipment		

Problem 2

On January 1, 20X2, Watkins Lumber Mill Corporation purchased a laser guided saw for $8,375,000. It cost an additional $125,000 to deliver, install, and calibrate the saw. This machine has a service life of 5 years, at which time it is expected that the device will be disposed of for a $100,000 salvage value.

Perkins uses the straight-line depreciation method.

a) Prepare a schedule showing annual depreciation expense, accumulated depreciation, and related calculations for each year.
b) Show how the asset and related accumulated depreciation would appear on a balance sheet at December 31, 20X4.
c) Prepare journal entries to record the asset's acquisition, annual depreciation for each year, and the asset's eventual sale for $100,000.

Worksheet

a)

Year	Annual Expense	Accumulated Depreciation at End of Year	Annual Expense Calculation
X2			
X3			
X4			
X5			
X6			

b)

Property, Plant & Equipment (20X4)

Equipment
Less: Accumulated depreciation

Solution

a)

Year	Annual Expense	Accumulated Depreciation at End of Year	Annual Expense Calculation
X2	$1,680,000	$1,680,000	($8,500,000 – $100,000)/5
X3	$1,680,000	$3,360,000	($8,500,000 – $100,000)/5
X4	$1,680,000	$5,040,000	($8,500,000 – $100,000)/5
X5	$1,680,000	$6,720,000	($8,500,000 – $100,000)/5
X6	$1,680,000	$8,400,000	($8,500,000 – $100,000)/5

b)

Property, Plant & Equipment (20X4)

Equipment	$ 8,500,000	
Less: Accumulated depreciation	(5,040,000)	$ 3,460,000

Problem 3

On January 1, 20X5, Titanium Mines purchased a new mining excavator for one of its mines. The machine cost $1,250,000 and has a service life of 12,500 hours. Regulations require careful records of usage, and the machine must be replaced or rebuilt at the end of the 12,500 hour service period. Titanium simply chooses to sell its used machines and acquire new ones. Used machines are expected to be resold for 1/4 of their original cost. Titanium uses the units-of-output depreciation method.

a) Assuming that the machine was used as follows, prepare a schedule showing annual depreciation expense, accumulated depreciation, and related calculations for each year.

20X5 3,250 hours
20X6 3,500 hours
20X7 3,000 hours
20X8 2,750 hours

b) Show how the asset and related accumulated depreciation would appear on a balance sheet at December 31, 20X6.
c) Prepare journal entries to record the asset's acquisition, annual depreciation for each year, and the asset's eventual sale for $312,500.

Worksheet

a)

Year	Annual Expense	Accumulated Depreciation at End of Year	Annual Expense Calculation
X5			
X6			
X7			
X8			

b)

Property, Plant & Equipment (20X6)

Aircraft engine
Less: Accumulated depreciation

c)

GENERAL JOURNAL			
Date	**Accounts**	**Debit**	**Credit**
1-Jan			
	To record the purchase of machine		
31-Dec			
20X5			
	To record 20X5 depreciation		
31-Dec			
20X6			
	To record 20X6 depreciation		
31-Dec			
20X7			
	To record 20X7depreciation		
31-Dec			
20X8			
	To record 20X8 depreciation		
31-Dec			
20X8			
	To record disposal of asset		

Solution

a)

Year	Annual Expense	Accumulated Depreciation at End of Year	Annual Expense Calculation
X5	$243,750	$243,750	$1,250,000 X 3,250/12,500
X6	$262,500	$506,250	$1,250,000 X 3,500/12,500
X7	$225,000	$731,250	$1,250,000 X 3,000/12,500
X8	$206,250	$937,500	$1,250,000 X 2,750/12,500

b)

Property, Plant & Equipment (20X6)

Aircraft engine	$ 1,250,000	
Less: Accumulated depreciation	(506,250)	$ 743,750

c)

GENERAL JOURNAL			
Date	**Accounts**	**Debit**	**Credit**
1-Jan	Machine	1,250,000	
	Cash		1,250,000
	To record the purchase of engine		
31-Dec	Depreciation Expense	243,750	
20X5	Accumulated Depreciation		243,750
	To record 20X5 depreciation		
31-Dec	Depreciation Expense	262,500	
20X6	Accumulated Depreciation		262,500
	To record 20X6 depreciation		
31-Dec	Depreciation Expense	225,000	
20X7	Accumulated Depreciation		225,000
	To record 20X7 depreciation		
31-Dec	Depreciation Expense	206,250	
20X8	Accumulated Depreciation		206,250
	To record 20X8 depreciation		
31-Dec	Cash	312,500	
20X8	Accumulated Depreciation	937,500	
	Equipment		1,250,000
	To record disposal of asset		

Problem 4

On January 1, 20X2, Lawn Pride acquired a Large Lawn Mower for $15,000. This device had a 4-year service life to Lawn Pride, at which time it is expected that the equipment will be sold for a $1,000 salvage value.

Lawn Pride uses the double-declining balance depreciation method.

a) Prepare a schedule showing annual depreciation expense, accumulated depreciation, and related calculations for each year.
b) Show how the asset and related accumulated depreciation would appear on a balance sheet at December 31, 20X4.
c) Prepare journal entries to record the asset's acquisition, annual depreciation for each year, and the asset's eventual sale for $1,000.

Worksheet

a)

Year	Annual Expense	Accumulated Depreciation at End of Year	Annual Expense Calculation
X2			
X3			
X4			
X5			

b)

Property, Plant & Equipment (20X4)

Equipment

Less: Accumulated depreciation

c)

GENERAL JOURNAL			
Date	**Accounts**	**Debit**	**Credit**
1-Jan			
	To record purchase of lawn mower		
31-Dec			
20X2			
	To record 20X2 depreciation		
31-Dec			
20X3			
	To record 20X3 depreciation		
31-Dec			
20X4			
	To record 20X4 depreciation		
31-Dec			
20X5			
	To record 20X5 depreciation		
31-Dec			
20X5			
	To record disposal of asset		

Solution

a)

Year	Annual Expense	Accumulated Depreciation at End of Year	Annual Expense Calculation
X2	$7,500	$7,500	$15,000 X 50%
X3	$3,750	$11,250	($15,000 – $11,250) X 50%
X4	$1,875	$13,125	($15,000 – $13,125) X 50%
X5	$875	$14,000	remaining depreciable base

b)

Property, Plant & Equipment (20X3)

Aircraft engine	$ 15,000		
Less: Accumulated depreciation	(13,125)	$	1,875

c)

GENERAL JOURNAL			
Date	**Accounts**	**Debit**	**Credit**
1-Jan	Equipment	15,000	
	Cash		15,000
	To record purchase of excavator		
31-Dec	Depreciation Expense	7,500	
20X5	Accumulated Depreciation		7,500
	To record 20X1 depreciation		
31-Dec	Depreciation Expense	3,750	
20X6	Accumulated Depreciation		3,750
	To record 20X2 depreciation		
31-Dec	Depreciation Expense	1,875	
20X7	Accumulated Depreciation		1,875
	To record 20X3 depreciation		
31-Dec	Depreciation Expense	875	
20X8	Accumulated Depreciation		875
	To record 20X4 depreciation		
31-Dec	Cash	1,000	
20X8	Accumulated Depreciation	14,000	
	Equipment		15,000
	To record disposal of asset		

Problem 5

On January 1, 20X1, City Delivery purchased a delivery truck for $80,000. At the time of purchase, City Delivery anticipated that it would use the truck for 4 years, even though its physical life is 6 years. At the end of the 4-year period, City Delivery believes it will be able to sell the truck for $30,000. City Delivery uses the straight-line depreciation method.

Gasoline prices increased significantly, and consumers began to buy more efficient vehicles. By early 20X4, it became apparent that the market for used delivery trucks like the one belonging to City Delivery was virtually nonexistent. Accordingly, City Delivery changed its plans and decided it would use the truck for its full 6-year life. At the end of the revised useful life, it is expected that the truck will be worth $3,500 for scrap value.

Prepare a schedule showing annual depreciation expense, accumulated depreciation, and related calculations for each year.

Worksheet

Year	Annual Expense	Accumulated Depreciation at End of Year	Annual Expense Calculation
X1			
X2			
X3			
X4			
X5			
X6			

Solution

Year	Annual Expense	Accumulated Depreciation at End of Year	Annual Expense Calculation
X1	$12,500	$12,500	($80,000 – $30,000)/4
X2	$12,500	$25,000	($80,000 – $30,000)/4
X3	$12,500	$37,500	($80,000 – $30,000)/4
X4	$13,000	$50,500	($80,000 – $37,500 – $3,500)/3
X5	$13,000	$63,500	($80,000 – $37,500 – $3,500)/3
X6	$13,000	$76,500	($80,000 – $37,500 – $3,500)/3

Problem 6

On January 1, 20X1, The Daylight Bakery purchased a new mass production oven. The oven has an expected life of 6 years. The system cost $230,000. Shipping, installation, and set up was an additional $40,000. At the end of the useful life, Joey Dough, chief accountant for Daylight, expects to dispose of the oven for $54,000. He further anticipates total output of 2,400,000 loaves of bread over the useful life.

a) Assuming use of the straight-line depreciation method, prepare a schedule showing annual depreciation expense, accumulated depreciation, and related calculations for each year.
b) Assuming use of the units-of-output depreciation method, prepare a schedule showing annual depreciation expense, accumulated depreciation, and related calculations for each year. Actual output, in bottles, was 320,000 (20X1), 360,000 (20X2), 400,000 (20X3), 420,000 (20X4), 460,000 (20X5), and 440,000 (20X6).
c) Assuming use of the double-declining balance depreciation method, prepare a schedule showing annual depreciation expense, accumulated depreciation, and related calculations for each year.
d) Assuming use of the straight-line method, prepare revised depreciation calculations if the useful life estimate was revised at the beginning of 20X4, to anticipate a remaining useful life of 4 additional years (in other words, a total life of 7 years). The revised useful life was accompanied by a change in estimated salvage value to $27,000.

Worksheet

a) Straight-line

Year	Annual Expense	Accumulated Depreciation at End of Year	Annual Expense Calculation
X1			
X2			
X3			
X4			
X5			
X6			

b) Units of Output

Year	Annual Expense	Accumulated Depreciation at End of Year	Annual Expense Calculation
X1			
X2			
X3			
X4			
X5			
X6			

c) Double-declining balance

Year	Annual Expense	Accumulated Depreciation at End of Year	Annual Expense Calculation
X1			
X2			
X3			
X4			
X5			
X6			

d) Straight-line revised

Year	Annual Expense	Accumulated Depreciation at End of Year	Annual Expense Calculation
X1			
X2			
X3			
X4			
X5			
X6			

Solution

a) Straight-line

Year	Annual Expense	Accumulated Depreciation at End of Year	Annual Expense Calculation
X1	$36,000	$36,000	($270,000 – $54,000) ÷ 6 years
X2	$36,000	$72,000	($270,000 – $54,000) ÷ 6 years
X3	$36,000	$108,000	($270,000 – $54,000) ÷ 6 years
X4	$36,000	$144,000	($270,000 – $54,000) ÷ 6 years
X5	$36,000	$180,000	($270,000 – $54,000) ÷ 6 years
X6	$36,000	$216,000	($270,000 – $54,000) ÷ 6 years

b) Units of Output

Year	Annual Expense	Accumulated Depreciation at End of Year	Annual Expense Calculation
X1	$28,800	$28,800	($270,000 – $54,000) X 320,000/2,400,000
X2	$32,400	$61,200	($270,000 – $54,000) X 360,000/2,400,000
X3	$36,000	$97,200	($270,000 – $54,000) X 400,000/2,400,000
X4	$37,800	$135,000	($270,000 – $54,000) X 420,000/2,400,000
X5	$41,400	$176,400	($270,000 – $54,000) X 460,000/2,400,000
X6	$39,600	$216,000	($270,000 – $54,000) X 440,000/2,400,000

c) Double-declining balance

Year	Annual Expense	Accumulated Depreciation at End of Year	Annual Expense Calculation
X1	$90,000	$90,000	$270,000 X 33.33%
X2	$60,000	$150,000	($270,000 – $90,000) X 33.33%
X3	$40,000	$190,000	($270,000 – $150,000) X 33.33%
X4	$26,000	$216,000	See note: ($270,000 – $190,000) X 33.33%
X5	$0	$216,000	n/a
X6	$0	$216,000	n/a

The amount calculated for 20X4 ($26,667) would cause accumulated depreciation to exceed the depreciable base ($216,000), and depreciation expense is therefore capped ($26,000).

d) Straight-line revised

Year	Annual Expense	Accumulated Depreciation at End of Year	Annual Expense Calculation
X1	$36,000	$36,000	($270,000 – $54,000) ÷ 6 years
X2	$36,000	$72,000	($270,000 – $54,000) ÷ 6 years
X3	$36,000	$108,000	($270,000 – $54,000) ÷ 6 years
X4	$33,750	$141,750	($270,000 – $108,000 – $27,000) ÷ 4 years
X5	$33,750	$175,500	($270,000 – $108,000 – $27,000) ÷ 4 years
X6	$33,750	$209,250	($270,000 – $108,000 – $27,000) ÷ 4 years
X7	$33,750	$243,000	($270,000 – $108,000 – $27,000) ÷ 4 years

Problem 7

Thomas Jensen is conducting an audit of the property, plant, and equipment records of CyberLight Systems. Thomas selected two specific assets for closer inspection. Thomas has examined documentation related to each asset's original purchase and compared it to the recorded cost, physically inspected the item to determine that it is still in the possession of the company, and conducted other similar assurance procedures.

The final step in the audit of these accounts is to test the calculations of depreciation expense and accumulated depreciation. Thomas has asked you to perform this final procedure for 20X8. Below is a schedule of the two assets, with the depreciation values determined by CyberLight. The building was depreciated by the straight-line method and the truck by the double-declining balance method. Determine if the indicated depreciation values are correct.

ITEM	COST	PURCHASE DATE	SERVICE LIFE	SALVAGE VALUE	DEPRECIATION EXPENSE FOR 20X8	ACCUMULATED DEPRECIATION AT 12/31/X8
Building	$ 2,400,000	July 1, 20X1	25 years	$ 800,000	$ 64,000	$ 512,000
Truck	$ 160,000	Oct. 1, 20X6	8 years	$ 7,500	$ 26,807	$ 72,080

Worksheet

Building:

Truck:

Solution

Both assets have depreciation errors. The correct values should be as follows:

Building:

Annual expense: ($2,400,000 – $800,000) ÷ 25 years = $64,000
Accumulated depreciation: $64,000 × 7.5 years = $480,000

Although the annual expense of CyberLight was correct, the accumulated depreciation appears to incorrectly reflect a full 8 years of depreciation ($64,000 × 8 = $512,000).

Truck:

20X6 expense: ($160,000 × 25% rate × 3/12) = $10,000
20X7 expense: (($160,000 – $10,000 acc. depr.) × 25% rate) = $37,500
20X8 expense: (($160,000 – ($10,000 + $37,500) acc. depr.) × 25% rate) = $28,125
Accumulated depreciation: $10,000 + $37,500 + $28,125 = $75,625

Multiplying the above correct values by (160,000-7,500)/160,000 arrives at the values reported by Cyberlight. Apparently, the company incorrectly subtracted the $7,500 salvage value in determining the base for depreciation. Recall that salvage value is initially ignored with this approach.