

How to Record Property, Plant and Equipment (Relevant to Paper 7 – Financial Accounting)

Dr. Kent Lee

Background

In accordance with HKAS 16, a company can choose either the cost model or revaluation model to account for property, plant and equipment. Under the cost model, the asset should be carried at cost less accumulated depreciation and less accumulated impairment loss. Under the revaluation model, the asset should be carried at the revalued amount, which is the fair value at the revaluation date less accumulated depreciation and less accumulated impairment loss.

HKAS 36 states that a company shall determine whether an item under property, plant and equipment should be impaired by comparing the recoverable amount with the carrying amount. The impairment test involves the following steps.

Step 1: Find out the fair value less the cost of disposal.

Step 2: Find out the value in use, which is the present value of future cash flow to be generated.

Step 3: The higher amount of either fair value less cost of disposal or value in use is the recoverable amount.

Step 4: If the recoverable amount is less than the carrying amount, then impairment loss should be recognized; otherwise, no adjustment is required.

Example 1 (using the Cost Model)

On 1 January 2016, Well Company acquired a truck for \$30,000 and a plant for \$1 million for its operations. Both acquisitions were paid for in cash. The useful life of the truck and the plant were estimated to be 4 years and 5 years respectively. Both the truck and the plant had zero residual value. Well Company uses the cost model to account for the truck and plant.

On 31 December 2017, the following information was given for the truck:

Fair value less cost of disposal was \$12,000

Cash flow to be generated

2018 year-end	2019 year-end
\$11,000	\$4,000

Discount rate of 10%

On 31 December 2017, the following information was given for the plant:

Fair value less cost of disposal was \$850,000

Cash flow to be generated

2018 year-end	2019 year-end	2020 year-end
\$560,000	\$340,000	\$290,000

Discount rate of 10%

Requirement

- (a) Prepare all the journal entries from 1 January 2016 to 31 December 2017 for the truck.
- (b) Calculate the carrying value of the truck as at 31 December 2017.
- (c) Prepare all the journal entries from 1 January 2016 to 31 December 2017 for the plant.
- (d) Calculate the carrying value of the plant as at 31 December 2017.

Solution

(a)

		Dr (\$)	Cr (\$)
1 Jan 16	Truck	30,000	
	Cash		30,000

		Dr (\$)	Cr (\$)
31 Dec 16	Depreciation expense	7,500	
	Accumulated depreciation		7,500

Explanation:

$$\$30,000 / 4 \text{ years} = \$7,500$$

		Dr (\$)	Cr (\$)
31 Dec 17	Depreciation expense	7,500	
	Accumulated depreciation		7,500

		Dr (\$)	Cr (\$)
31 Dec 17	Impairment loss	1,694	
	Accumulated impairment loss		1,694

Explanation:

Carrying amount on 31 December 2017 = $\$30,000 - \$7,500 \times 2 = \$15,000$

Value in use = $\$11,000 / (1 + 10\%) + \$4,000 / (1 + 10\%)^2 = \$13,306$

Fair value less cost of disposal was \$12,000.

The recoverable amount is the higher of \$13,306 and \$12,000, which is \$13,306.

The recoverable amount of \$13,306 is less than the carrying amount of \$15,000.

Therefore, impairment loss of \$1,694 ($\$15,000 - \$13,306$) should be recognized.

(b)

Carrying value of the truck as at 31 December 2017

$$= \text{Cost} - \text{Accumulated depreciation} - \text{Accumulated impairment loss}$$
$$= \$30,000 - \$7,500 \times 2 - \$1,694 = \$13,306 \text{ (recoverable amount)}$$

(c)

		Dr (\$)	Cr (\$)
1 Jan 16	Plant	1,000,000	
	Cash		1,000,000

		Dr (\$)	Cr (\$)
31 Dec 16	Depreciation expense	200,000	
	Accumulated depreciation		200,000

Explanation:

$$\$1,000,000 / 5 \text{ years} = \$200,000$$

		Dr (\$)	Cr (\$)
31 Dec 17	Depreciation expense	200,000	
	Accumulated depreciation		200,000

Explanation:

$$\text{Carrying amount on 31 December 2017} = \$1,000,000 - \$200,000 \times 2 = \$600,000$$

$$\text{Value in use} = \$560,000 / (1 + 10\%) + \$340,000 / (1 + 10\%)^2 + 290,000 / (1 + 10\%)^3 = \$1,007,964$$

Fair value less cost of disposal was \$850,000.

The recoverable amount is the higher of \$1,007,964 and \$850,000, which is \$1,007,964.

The recoverable amount of \$1,007,964 is greater than the carrying amount of \$600,000, therefore no adjustment is required.

(d)

Carrying value of plant as at 31 December 2017

$$= \text{Cost} - \text{Accumulated depreciation}$$
$$= \$1,000,000 - \$200,000 \times 2 = \$600,000$$

Example 2 (using the Revaluation Model)

On 1 January 2016, Great Company acquired a factory for \$200,000 and a building for \$480,000 for manufacturing purposes. Both acquisitions were paid for in cash.

The factory had a useful life of 10 years and zero residual value. On 31 December 2016, its revalued amount was \$250,000. On 31 December 2017, its revalued amount was \$110,000, and on 31 December 2018, its revalued amount was \$60,000. The factory was disposed of on 31 December 2019 for \$80,000.

The building had a useful life of 20 years and its residual value was zero. On 31 December 2016, its revalued amount was \$340,000. On 31 December 2017, its revalued amount was \$560,000. The building was disposed of on 1 January 2018 for \$550,000.

Great Company uses the revaluation model to account for the factory and building. The accumulated depreciation is eliminated upon revaluation. It is the company's accounting policy to make an annual transfer of the realized amounts of revaluation surplus to retained profit by use or sale of the asset.

Requirement

- (a) Prepare all necessary journal entries from 1 January 2016 to 31 December 2019 for the factory.
- (b) Calculate the carrying value of the factory as at 31 December 2019 before disposal.
- (c) Prepare all necessary journal entries from 1 January 2016 to 1 January 2018 for the building.
- (d) Calculate the carrying value of the building as at 31 December 2017.

Solution

(a)

		Dr (\$)	Cr (\$)
1 Jan 16	Factory	200,000	
	Cash		200,000

		Dr (\$)	Cr (\$)
31 Dec 16	Depreciation expense	20,000	
	Accumulated depreciation		20,000

Explanation:

$$\$200,000 / 10 \text{ years} = \$20,000$$

		Dr (\$)	Cr (\$)
31 Dec 16	Factory	250,000	
	Accumulated depreciation	20,000	
	Factory		200,000
	Revaluation surplus		70,000

Explanation:

Under HKAS 16, if an asset's carrying amount is increased upon revaluation, the increase shall be accumulated in revaluation surplus.

$$\begin{aligned} &\text{Revaluation surplus} \\ &= \text{Revalued amount} - \text{Carrying amount} \\ &= \$250,000 - (\$200,000 - \$20,000) \\ &= \$70,000 \end{aligned}$$

		Dr (\$)	Cr (\$)
31 Dec 17	Depreciation expense	27,778	
	Accumulated depreciation		27,778

Explanation:

$$\$250,000 / 9 \text{ years} = \$27,778$$

		Dr (\$)	Cr (\$)
31 Dec 17	Revaluation surplus	7,778	
	Retained profit		7,778

Explanation:

Under HKAS 16, some revaluation surplus may be transferred to retained profit, as the asset is used by an entity. Such amount transferred is the difference between depreciation based on the revalued carrying amount of the asset and depreciation based on its original cost.

Amount transferred

$$\begin{aligned}
 &= \text{Depreciation based on revalued carrying amount} - \text{Depreciation based on original cost} \\
 &= \$27,778 - \$20,000 \\
 &= \$7,778
 \end{aligned}$$

		Dr (\$)	Cr (\$)
31 Dec 17	Revaluation surplus	62,222	
	Revaluation loss	50,000	
	Factory	110,000	
	Accumulated depreciation	27,778	
	Factory		250,000

Explanation:

Under HKAS 16, if an asset's carrying amount is decreased upon revaluation, the decrease should offset the balance of revaluation surplus first and the remaining decrease should be recognized as revaluation loss in profit and loss account.

$$\begin{aligned}
 &\text{Revalued amount} - \text{Carrying amount} \\
 &= \$110,000 - (\$250,000 - \$27,778) \\
 &= (\$112,222)
 \end{aligned}$$

$$\begin{aligned}
 &\text{The balance of revaluation surplus before revaluation as at 31 December 2017} \\
 &= \$70,000 - \$7,778 \\
 &= \$62,222
 \end{aligned}$$

$$\begin{aligned}
 &\text{The amount charged to profit and loss account as revaluation loss} \\
 &= \$112,222 - \$62,222 \\
 &= \$50,000
 \end{aligned}$$

		Dr (\$)	Cr (\$)
31 Dec 18	Depreciation expense	13,750	
	Accumulated depreciation		13,750

Explanation:

$$\$110,000 / 8 \text{ years} = \$13,750$$

		Dr (\$)	Cr (\$)
31 Dec 18	Factory	60,000	
	Revaluation loss	36,250	
	Accumulated depreciation	13,750	
	Factory		110,000

Explanation:

$$\begin{aligned} &\text{Revaluation loss} \\ &= \text{Revalued amount} - \text{Carrying amount} \\ &= \$60,000 - (\$110,000 - \$13,750) \\ &= (\$36,250) \end{aligned}$$

		Dr (\$)	Cr (\$)
31 Dec 19	Depreciation expense	8,571	
	Accumulated depreciation		8,571

Explanation:

$$\$60,000 / 7 \text{ years} = \$8,571$$

		Dr (\$)	Cr (\$)
31 Dec 19	Cash	80,000	
	Accumulated depreciation	8,571	
	Factory		60,000
	Gain on disposal of factory		28,571

Explanation:

$$\begin{aligned} &\text{Gain on disposal} \\ &= \text{Cash} - \text{Carrying amount} \\ &= \$80,000 - (\$60,000 - \$8,571) \\ &= \$28,571 \end{aligned}$$

(b)

$$\begin{aligned} &\text{Carrying value before disposal as at 31 December 2019} \\ &= \$60,000 - \$8,571 \\ &= \$51,429 \end{aligned}$$

(c)

		Dr (\$)	Cr (\$)
1 Jan 16	Building	480,000	
	Cash		480,000

		Dr (\$)	Cr (\$)
31 Dec 16	Depreciation expense	24,000	
	Accumulated depreciation		24,000

Explanation:

$$\$480,000 / 20 \text{ years} = \$24,000$$

		Dr (\$)	Cr (\$)
31 Dec 16	Revaluation loss	116,000	
	Accumulated depreciation	24,000	
	Building	340,000	
	Building		480,000

Explanation:

$$\begin{aligned} &\text{Revaluation loss} \\ &= \text{Revalued amount} - \text{Carrying amount} \\ &= \$340,000 - (\$480,000 - \$24,000) \\ &= (\$116,000) \end{aligned}$$

		Dr (\$)	Cr (\$)
31 Dec 17	Depreciation expense	17,895	
	Accumulated depreciation		17,895

Explanation:

$$= \$340,000 / 19 \text{ years} = \$17,895$$

		Dr (\$)	Cr (\$)
31 Dec 17	Building	560,000	
	Accumulated depreciation	17,895	
	Revaluation loss		116,000
	Revaluation surplus		121,895
	Building		340,000

Explanation:

Under HKAS 16, if the carrying value is increased upon revaluation, the increase shall first reverse the revaluation loss recognized in previous year(s), and any remaining increase is credited to the revaluation surplus.

$$\begin{aligned} &\text{Revalued amount} - \text{Carrying amount} \\ &= \$560,000 - (\$340,000 - \$17,895) \\ &= \$237,895 \end{aligned}$$

Revaluation loss recognized in previous year(s) = \$116,000

Amount credited to revaluation surplus = \$237,895 - \$116,000 = \$121,895

		Dr (\$)	Cr (\$)
1 Jan 18	Cash	550,000	
	Loss on disposal of building	10,000	
	Building		560,000

		Dr (\$)	Cr (\$)
1 Jan 18	Revaluation surplus	121,895	
	Retained profit		121,895

Explanation:

Under HKAS 16, the revaluation surplus may be transferred directly to retained earnings when the asset is disposed of.

(d)

Carrying value of the building as at 31 December 2017 = \$560,000