

Exercise 04-35 Proration of overhead.

The Ride-On-Wave Company (ROW) produces a line of non-motorized boats. ROW uses a normal-costing system and allocates manufacturing overhead using direct manufacturing labor cost. The following data are for 2014:

Budgeted manufacturing overhead cost	\$125,000
Budgeted direct manufacturing labor cost	\$250,000
Actual manufacturing overhead cost	\$117,000
Actual direct manufacturing labor cost	\$228,000

Inventory balances on December 31, 2014, were as follows:

<u>Account</u>	<u>Ending balance</u>	<u>2014 direct manufacturing labor cost in ending balance</u>
Work in process	\$ 50,700	\$ 20,520
Finished goods	245,050	59,280
Cost of goods sold	549,250	148,200

Required:

1. Calculate the manufacturing overhead allocation rate.
2. Compute the amount of under- or overallocated manufacturing overhead.
3. Calculate the ending balances in work in process, finished goods, and cost of goods sold if under- or overallocated manufacturing overhead is as follows:
 - a. Written off to cost of goods sold
 - b. Prorated based on ending balances (before proration) in each of the three accounts
 - c. Prorated based on the overhead allocated in 2014 in the ending balances (before proration) in each of the three accounts
4. Which method would you choose? Justify your answer.

SOLUTION

$$\begin{aligned} 1. \text{ Budgeted manufacturing overhead rate} &= \frac{\text{Budgeted manufacturing overhead cost}}{\text{Budgeted direct manufacturing labor cost}} \\ &= \frac{\$125,000}{\$250,000} = 50\% \text{ of direct manufacturing labor cost} \end{aligned}$$

$$\begin{aligned} 2. \text{ Overhead allocated} &= 50\% \times \text{Actual direct manufacturing labor cost} \\ &= 50\% \times \$228,000 = \$114,000 \end{aligned}$$

$$\begin{aligned} \text{Underallocated manufacturing overhead} &= \text{Actual manufacturing overhead costs} - \text{Allocated plant overhead costs} \\ &= \$117,000 - \$114,000 = \$3,000 \end{aligned}$$

$$\text{Underallocated manufacturing overhead} = \$3,000$$

3a. All underallocated manufacturing overhead is written off to cost of goods sold.

Both work-in-process (WIP) and finished goods inventory remain unchanged.

Account	Dec. 31, 2014 Balance (Before Proration) (1)	Proration of \$3,000 Underallocated Manuf. Overhead (2)	Dec. 31, 2014 Balance (After Proration) (3) = (1) + (2)
WIP	\$ 50,700	\$ 0	\$ 50,700
Finished Goods	245,050	0	245,050
Cost of Goods Sold	<u>549,250</u>	<u>3,000</u>	<u>552,250</u>
Total	<u>\$845,000</u>	<u>\$3,000</u>	<u>\$848,000</u>

3b. Underallocated manufacturing overhead prorated based on ending balances:

Account	Dec. 31, 2014 Account Balance (Before Proration) (1)	Account Balance as a Percent of Total (2) = (1) ÷ \$845,000	Proration of \$3,000 Underallocated Manuf. Overhead (3) = (2) × \$3,000	Dec. 31, 2014 Account Balance (After Proration) (4) = (1) + (3)
WIP	\$ 50,700	0.06	0.06 × \$3,000 = \$ 180	\$ 50,880
Finished Goods	245,050	0.29	0.29 × \$3,000 = 870	245,920
Cost of Goods Sold	<u>549,250</u>	<u>0.65</u>	0.65 × \$3,000 = <u>1,950</u>	<u>551,200</u>
Total	<u>\$845,000</u>	<u>1.00</u>	<u>\$3,000</u>	<u>\$848,000</u>

3c. Underallocated manufacturing overhead prorated based on 2014 overhead in ending balances:

Account	Dec. 31, 2014 Account Balance (Before Proration) (1)	Allocated Manuf. Overhead in Dec. 31, 2014 Balance (Before Proration) (2)	Allocated Manuf. Overhead in Dec. 31, 2014 Balance as a Percent of Total (3) = (2) ÷ \$114,000	Proration of \$3,000 Underallocated Manuf. Overhead (4) = (3) × \$3,000	Dec. 31, 2014 Account Balance (After Proration) (5) = (1) + (4)
WIP	\$ 50,700	\$ 10,260 ^a	0.09	0.09 × \$3,000 = \$ 270	\$ 50,970
Finished Goods	245,050	29,640 ^b	0.26	0.26 × \$3,000 = 780	245,830
Cost of Goods Sold	<u>549,250</u>	<u>74,100^c</u>	<u>0.65</u>	0.65 × \$3,000 = <u>1,950</u>	<u>551,200</u>
Total	<u>\$845,000</u>	<u>\$114,000</u>	<u>1.00</u>	<u>\$3,000</u>	<u>\$848,000</u>

^{a,b,c} Overhead allocated = Direct manuf. labor cost × 50% = \$20,520; \$59,280; \$148,200 × 50%

4. Writing off all of the underallocated manufacturing overhead to Cost of Goods Sold (CGS) is usually warranted when CGS is large relative to Work-in-Process and Finished Goods Inventory and the underallocated manufacturing overhead is immaterial. Both these conditions apply in this case. ROW should write off the \$3,000 underallocated manufacturing overhead to Cost of Goods Sold Account.