John Aldrin F. Cruz, CPA

Process Costing

- This method is used when products are manufactured under the condition of continuous processing or mass production methods where the products manufactured within a department (cost center) are homogenous (similar products) with equal amounts of materials, labor, and overhead applied to such products.
- These conditions often exist in industries that produce homogenous products or commodities such as: paper, lumber, pipe petroleum, textiles, steel, wire, bricks, cement, flour, sugar, peanut butter, meat, sugar, cereals, linoleum, leather, nylon, paint, tires and tubes, glass, mining, and canneries. It is also used by companies that manufactures simple-machined parts and small electrical parts (nails, nuts and bolts, light bulbs, semiconductor chips, and floppy disks), and by assembly-type industries (automobiles, engines, tape recorders, personal computers, and household appliances. Some utility companies such as gas, water, and electricity and no-manufacturing businesses such as food preparation in fast-food, restaurants, mall sorting in post offices, check processing in banks, and student registration in college.
- The cost accumulation of materials, labor, and overhead must be by department or cost center. The cost assigned to each unit is determined by dividing the total cost charged to the cost center by the number of units produced. Cost centers are usually departments, but it may also be processing centers within the departments. The primary requirement is that all the products manufactured within the cost center during the period must be the same (similar in nature or homogenous), otherwise process costing will result in a distortion of product costs.
- In manufacturing firms, production can take place in several departments and each department performs a specific operation or process leading to the completion of the product.

PROCESSING COSTING-RELATED REPORTS

1. **PRODUCTION REPORT** – at the end of each month, each department prepares a production report. This shows the number of units that were in process in the department at the start of the month, the number of units transferred out of the department during the month, the number of units still in work in process at the end of the month, and the percentage of completion of the units still in process at the end of the month.

2. **COST OF PRODUCTION REPORT** – based on the production report and the information about cost incurred during the month, a cost of production report is prepared by each department at the end of the month. This is the report used by management to understand and evaluation the operations of a department because it shows the flow of units as well as the flow of costs related to that department. The report summarizes the costs incurred in the department., the average cost per unit of product, the total costs of products completed and transferred out of the department, and the cost related to the ending inventory of work in process in each department. This report is the source for summary journal entries for the period.

METHODS OF TREATING BEGINNING INVENTORY IN PROCESS COSTING

1. **FIFO METHOD** – only the costs incurred this period are allocated between the finished goods and ending work-in-process. Beginning inventory costs are maintained separately from the current period costs. Finished goods this period costed separately as either started last period and completed this period or started this period or completed this period. This is the method that accurately represents the physical flow of units.

2. **WEIGHTED AVERAGE METHOD** – it averages all materials, labor, and overhead both incurred in the beginning work-in-process and those incurred this period. Thus, no differentiation is made between goods started in the preceding and the current period.

NOTE: The result of computation is that the equivalent units of production (EUP) in FIFO Method differs from the EUP in Weighted Average Method by the amount of **EUP in beginning work-in-process**.

METHODS OF APPLICATION OF COST ELEMENTS IN PROCESS COSTING

1. **EVEN APPLICATION OF COSTS** – materials, labor, and overhead were applied at the same rate throughout the production, thereby rendering the equivalent units of production (EUP) to be of equal amounts.
2. **UNEVEN APPLICATION OF COSTS –** materials, labor, and overhead may be applied at different stages of production rendering the equivalent units of production (EUP) to be of unequal amounts.

ACCOUNTING FOR LOST UNITS

TYPES OF LOST UNITS:
1. NORMAL LOST UNITS
2. ABNORMAL LOST UNITS

NORMAL LOST UNITS

- These are units which are expected or anticipated, inherent, usual, and unavoidable in the production process or within the tolerable limit set by the company.
- Normal lost units maybe due to weight losses, shrinkage, evaporation, or rusting.
- The costs of normal lost units are accounted for as product costs.
- It is included as part of the cost of all finished units or work in process.
- It increases the cost of production of the usable goods.

ABNORMAL LOST UNITS

- These are spoiled units which are unexpected, not inherent, unusual, and avoidable or if it is expected, it is beyond the tolerable limit set by the company.
- Abnormal lost units maybe due to abnormal working conditions, accidents, strikes, machine breakdowns, fortuitous events, inefficient workers, low quality or defective raw materials.
- The cost of the abnormal units will be accounted for as period costs.
- Cost of abnormal lost units are not absorbed by the good units.

IDENTIFICATION OF LOST UNITS
1. CONTINOUS LOSS
2. DISCRETE LOSS

CONTINOUS LOSS – loss occurs evenly throughout the production process.

ACCOUNTING FOR EUP OF LOST UNITS DEPENDS ON THE INSPECTION POINT

Inspection Point	**Normal Lost Units**	**Abnormal Lost Units**
	(Percentage of Completion)	
Start of the Process	0%	0%
During the Process	0%	0%
End of the Process	100%	100%
If the problem is silent	Start of the Process – 0%	End of the Process – 100%

WHICH ABSORBS THE COST OF LOST UNITS?

Absorbing GOOD Units	**Normal Lost Units**		**Abnormal Lost Units**
Under FIFO	Start/During	End	NOT ABSORBED
WIP Beg, finished and transferred	NO	YES	
Started, finished and transferred	YES	YES	
WIP End	YES	NO	
Under WEIGHTED AVERAGE			
Started, finished and transferred	YES	YES	
WIP End	YES	NO	

DISCRETE LOSS – lost units occur at the specific point in the production process and it will be detected only when the company performed a quality inspection at the particular inspection point.

WHICH ABSORBS THE COST OF LOST UNITS?

- Cost of Normal Lost Units should only be allocated to units that have passed the inspection point. Such units should be considered good units.
- Cost of Abnormal Lost Units should be considered as period costs.

-END OF LECTURE-

ILLUSTRATIVE PROBLEMS

Problem 1:

1. Bart Company adds materials at the end of the process in Department M. The following information pertains to Department M's work-in-process during April:

	Units
Work-in-process, 4/1 (60% complete, conversion costs)	3,000
Started in January	25,000
Completed	20,000
Work-in-process, 4/30 (75% complete conversion costs)	8,000

What are the equivalent units of production for the month of January:

	FIFO		Average	
	Materials	Conversion	Materials	Conversion
A.	28,000	28,000	28,000	28,000
B.	20,000	20,000	26,000	26,000
C.	20,000	24,200	20,000	26,000
D.	24,200	20,000	26,000	20,000

2. The Wiring Department is the second stage of Flem Company's production cycle. On May 1, the BWIP contained 25,000 units which were 60% complete as to conversion costs. During May, 100,000 units were transferred-in from the first stage of Flem's production cycle. On May 31, EWIP contained 20,000 units which were 80% complete as to conversion costs. Materials added at the end of the process. Using FIFO method, the EUP on May 31 were:

	Transferred-in Costs	Materials	Conversion Costs
A.	100,000	125,000	100,000
B.	125,000	105,000	105,000
C.	125,000	105,000	121,000
D.	100,000	105,000	106,000

3. Using the same information in No. 9, except that weighted average method is used, the EUP on May 31 were:

	Transferred-in Costs	Materials	Conversion Costs
A.	100,000	125,000	100,000
B.	125,000	105,000	105,000
C.	125,000	105,000	121,000
D.	125,000	125,000	121,000

Problem 2: (COST OF PRODUCTION REPORT)
Items 1 to 4 are based on the following information:
Roy Company manufactures product X in a two-stage production cycle in Department A and B. Materials are added at the beginning of the process in Department B. Conversion costs for Department B were 50% complete as to the 6,000 units in the beginning work in process and 75% complete as to the 8,000 units in the ending work in process. 12,000 units were completed and transferred out of Department B during February 2016. An analysis of the costs relating to work in process (WIP) and production activity in Department B for February 2016 is as follows:

	Cost		
	Transferred- in	Materials	Conversion
WIP, February 1: Costs attached	P 12,000	P 2,500	P 1,000
February activity: Costs Added	29,000	5,500	5,000

1. The cost per equivalent from the preceding department (rounded to nearest centavo):

	FIFO	Average
A.	P2.07	P2.05
B.	P2.78	P2.77
C.	P2.77	P2.78
D.	P2.05	P2.07

2. The current total unit cost in this department (for materials, labor, and overhead) for product X (rounded

to nearest centavo):

	FIFO	Average		FIFO	Average
A.	P .72	P .73	C.	P .77	P .78
B.	P .78	P .77	D.	P .78	P .79

3. The total cost per equivalent unit for February was: (rounded to nearest centavo):

	FIFO	Average		FIFO	Average
A.	P2.79	P2.78	C.	P2.77	P2.78
B.	P2.78	P2.79	D.	P4.78	P2.78

4. The total cost per equivalent unit transferred-out for February 2016 of product X, rounded to the nearest centavo, was:

	FIFO	Average		FIFO	Average
A.	P2.77	P2.77	C.	P2.77	P2.78
B.	P2.78	P2.77	D.	P2.78	P2.78

Problem 3:

1. Basic Chemical Industries, Inc. produces product through a continuous process in different departments (FIFO). Each department has an independent cost accountant who is tasked with cumulating costs and the preparation of reports for the department assigned to him. You have been assigned as cost accountant for Department A. Production data of Department A for the month of September, 2019 were as follows:

Work in process, September 1	14,000 kg.
Percentage of Completion	70%
Started in process	70,000 kg.
Work in Process, September 30	12,000 kg.
Percentage of completion	60%
Lost units (normal) at end of process	2,000 kg.

In this department, costs are applied as follows:
Materials- added at start.
Labor and overhead – evenly distributed.

Department cost incurred in September was:

Materials	P56,000
Labor	17,350
Overhead	13,880
Work in process cost, September 1	8,000

Compute the current total unit for materials, labor and overhead.

A.	P1.23	C.	P1.17
B.	P1.04	D.	P1.25

2. Using the same information in No. 3, what is the cost of the:

	Units transferred	Work in Process, September 30
A.	P82,390	P9,600
B.	81,890	9,600
C.	72,000	12,840
D.	82,390	12,840

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