Chapter 8

Standard Cost Accounting
Materials, Labor, and Factory
Overhead
Learning Objectives

LO1  Describe the different standards used in determining standard costs.

LO2  Use the proper procedures for recording standard costs for materials and labor.

LO3  Explain the meaning of variances and how they are analyzed.

LO4  Prepare journal entries to record and dispose of variances.
Learning Objectives

Lo5 Perform an in-depth variance analysis.

LO6 Recognize the specific features of a standard cost system.

LO7 Account for standard costs in a departmentalized factory.

LO8 Recognize the difference between actual and applied overhead.
Learning Objectives

LO9  Compute the controllable variance and the volume variance for the two-variance method of analysis.

LO10 Compute the spending, efficiency, budget, and volume variances for the four-variance method of analysis.

LO11 Compute the budget, capacity, and efficiency variances for the three-variance method of analysis.
Standard Cost Accounting

- Primary purpose is to control costs and promote efficiency.
- This system is used in conjunction with other costing methods.
- It is based on predetermined rates.
- Any deviation can be quickly detected and responsibility pinpointed so that appropriate action may be taken.
Control of Costs

- Stability of costs does not necessarily indicate efficiency.
- Comparison of actual costs to standard, rather than to historical cost, will help control costs and promote efficiency.
- Standard costs are usually determined for a period of one year and are revised annually.
Types of Standards

- A standard is a norm against which the actual performance can be measured.
  - Ideal standard – a standard that a company sets in which they meet their maximum degree of efficiency. Does not take inefficient conditions into consideration.
  - Attainable standard – includes factors such as lost time and normal waste and spoilage.
Standard Cost Procedures

1. Standard costs are determined for the three elements of cost – direct materials, direct labor, and factory overhead.

2. The standard costs, the actual costs, and the variance between the actual and standard costs are recorded in appropriate accounts.

3. Significant variances are analyzed and investigated and appropriate action is taken.
Determining Standards – Materials and Labor

- **Materials cost standard**
  - Determined based on the production engineering department’s estimate of the amounts and types of materials needed.
  - Cost is based on the purchasing agent’s knowledge of suppliers’ prices.

- **Labor cost standard**
  - Time-study engineers will establish the time necessary to perform each operation.
  - Human resource department will provide the prevailing wage rates.
Recording Standard Costs

- Standard costs, actual costs, and the variances are recorded in various journals and transferred to the general ledger.
- The entries may occur more frequently, depending upon the capabilities of the accounting information system.
Determining Variances

- A variance is the difference between the actual and the standard costs of materials, labor, and overhead.
- The differences may be in usage and in prices.
  - Materials price variance
  - Materials quantity variance
  - Labor rate variance
  - Labor efficiency variance
Materials Price Variance

- Indicates the difference between actual and standard unit cost times the actual quantity of materials used.

\[
(\text{Actual unit price of materials} - \text{standard price of materials}) \times \text{actual quantity of materials used} = \text{Materials Price Variance}
\]
Materials Quantity Variance

- Represents the difference between actual quantity of materials used and standard quantity allowed times the standard unit cost of materials.

\[(\text{Actual quantity of materials used} - \text{standard quantity of materials allowed}) \times \text{standard unit price of material} = \text{Materials Quantity Variance}\]
Labor Rate Variance

- Indicates the difference between actual and standard labor rate times the actual hours worked.

\[(\text{Actual labor rate per hour} - \text{standard labor rate per hour}) \times \text{actual number of labor hours worked} = \text{Labor Rate Variance}\]
Labor Efficiency Variance

- Represents the difference between actual quantity of labor worked and standard quantity allowed times the standard rate per hour.

\[(\text{Actual number of labor hours worked} - \text{standard number of labor hours allowed}) \times \text{standard labor rate per hour} = \text{Labor Efficiency Variance}\]
Materials Variances

- Actual cost (Actual quantity used x actual priced per unit)
- Actual quantity used x standard price per unit
- Equivalent production x Standard per unit x Standard price

- Materials Price Variance
- Materials Quantity Variance
- Net Materials Variance
Labor Variances

Actual hours (Actual hours worked x actual rate per hour) = Labor Rate Variance

Actual hours worked x standard price per hour = Labor Efficiency Variance

Equivalent production x Standard hours per unit x Standard rate = Net Labor Variance
# Accounting for Variances

**To record the entry for direct materials cost:**

- Work in Process \( XX \)
- Materials Quantity Variance \( XX \)
  - Materials Price Variance \( XX \)
  - Materials \( XX \)

**To record the entry for direct labor cost:**

- Work in Process \( XX \)
- Labor Rate Variance \( XX \)
  - Labor Efficiency Variance \( XX \)
  - Payroll \( XX \)

**To record the entry applying factory overhead to work in process:**

- Work in Process \( XX \)
- Applied Factory Overhead \( XX \)

**To record the entry for finished goods at standard cost:**

- Finished Goods \( XX \)
- Work in Process \( XX \)
Disposition of the Variances

1. Prorate the variances to Cost of Goods Sold, Work in Process, and Finished Goods in proportion to the standard materials, labor, and overhead costs included in the ending balances for those accounts.

2. Close the variance entirely to Cost of Goods Sold for the period.

3. If 2 (above) would materially misstate financial statements, prorate (1, above).

4. If production is seasonal or varies greatly, set up a deferred charges or credits on interim balance sheets, and dispose of at year end using one of the above methods.

5. If due to abnormal circumstances, charge off as extraordinary gains or losses on the income statement.
Analysis of Variances

Possible reasons for materials price variance.
1. Inefficient purchasing methods.
2. Use of a slightly different material than the standard called for.
3. Increase in market price.
Analysis of Variances (cont.)

- Reasons for materials usage variance.
  1. Materials were spoiled or wasted.
  2. More materials were used as an experiment to upgrade the quality of the product.
Features of Standard Costing

1. An actual unit cost of manufacturing a product is not determined – only the total cost.
2. Even though based on estimates, standards may be very reliable.
3. Standards must change as conditions change.
4. Standards provide incentives to keep costs and performance in line with predetermined management objectives.
5. Recording variances, helps management focus attention on prices paid and quantities purchased.
6. Variances may be calculated weekly or daily to facilitate corrective action, even when recorded monthly.
## Journal Entries in a Standard Cost System

### Recording of materials cost in a standard cost system.
- **Work in Process**
  - XX (Standard)
- **Materials Quantity Variance**
  - XX (Unfavorable)  XX (Favorable)
- **Materials Price Variance**
  - XX (Unfavorable)  XX (Favorable)
- **Factory Overhead (Indirect Materials)**
  - XX
  - **Materials (Actual)**
  - XX

### Recording of labor in a standard cost system.
- **Work in Process**
  - XX (Standard)
- **Labor Rate Variance**
  - XX (Unfavorable)  XX (Favorable)
- **Labor Efficiency Variance**
  - XX (Unfavorable)  XX (Favorable)
- **Factory Overhead (Indirect Labor)**
  - XX
- **Payroll**
  - XX
Journal Entries in a Standard Cost System (cont.)

Applying factory overhead to work in process.

Work in Process (standard cost) \ XX
Applied Factory Overhead \ XX

Transfer to finished goods.

Finished Goods (standard cost) \ XX
Work in Process \ XX

Record actual factory overhead.

Factory Overhead (actual) \ XX
Various Credits \ XX
Factory Overhead – Determining Standard Costs

- Involves estimation of factory overhead at the standard level of production taking historical data and future changes into consideration.
- Standard cost is applied to Work in Process based on number of units produced.
- Factory overhead is debited with actual costs and credited with standard costs.
Two-Variance Method

- Divides the total variance into two parts.
  - Controllable variance
    - The amount by which the actual factory overhead costs differ from the standard overhead costs for the attained level of production.
  - Volume variance
    - The difference between budgeted fixed overhead and the fixed overhead applied to work in process.
Labor Variances

- Actual factory overhead
- Overhead budgeted for actual production
- Controllable variance
- Volume variance
- Applied factory overhead
- Net factory overhead variance
Four-Variance Method

- Recognizes two variable cost variances and two fixed cost variances.

- Cost variances.
  - Variable overhead spending variance
  - Variable overhead efficiency variance

- Fixed cost variances.
  - Fixed overhead budget variance
  - Fixed overhead volume variance
Three-Variance Method

- Separates actual and applied overhead into three variances.
  - Budget variance or spending variance
  - Capacity variance
  - Efficiency variance
- Not as common as two variance method but frequently used by manufacturers.