STANDARD COSTING AND VARIANCE ANALYIS

A standard cost is a pre-determined cost or target cost that should be incurred under efficient operational conditions.

TYPES OF STANDARDS.

1. Basic Standard: They represent constant standard that are left unchanged over a long period of time
2. Ideal standard – They provide a minimum cost that are possible under the most efficient operations, they are unlikely to be used in practice because they may have adverse effect on employee motivation.
3. Attainable Standards – They represent those cost that can be used for decision making under the efficient operating conditions.
4. Current standards- This is a standard set before for use over short period to reflect the current conditions. They are normally used to determine the quality of a particular standard.

Variance – it is a deviation of actual results from the set standards.

MATERIAL VARIANCE.

1. material price variance (MPV) = Actual quantity (Standard price – Actual price)
   AQ (SP – AP)
2. Material Usage Variance (MUV) = Standard price (Standard Quantity – Actual Quantity)
   SP (SQ – AQ)
3. Material Mixed Variance (MMV) = SP (Actual Q in standard mix- Actual Q in actual mix)
4. Material Yield variance (MYV) = SP (SQ in std Mix –AQ in std Mix
5. Material Cost Variance (MCV) = (SQ XSP) – (AQ X AP)

LABOUR VARIANCES

a. Labor cost variance (LCV) (SH X SR) – (AH X AR)
   SH – Standard Hours
   SR – Standard Rate
   AH – Actual Hours
   AR – Actual Rate
b. Labor Rate Variance (LRV) = AH (SR – AR)

c. Labor Efficient Variance (L E V) = SR (SH – AH)
d. Labor Mix Variance = SR (Actual hrs. in std mix – Actual Hrs. in actual mix)
e. Labor yield Variance (SH in std mix – AH in std Mix)

VARIABE OVERHEAD VARIANCE

1. Variable overhead Expenditure Variance.

Variable overhead/hour x Actual Hours – Actual Variable overhead

2. Variable overhead efficiency variance = VOR/HR (SH – AH)

FIXED OVERHEAD VARAIANCE

1. Fixed overhead expenditure Variance=

Budgeted fixed overhead – Actual fixed overhead

2. Fixed overhead volume variance =

Fixed overhead cost per unit (Budgeted units – Actual units)

3. Fixed overhead efficiency Variance

Fixed cost per hour (SH – AH)

4. Fixed overhead capacity variance

Fixed overhead cost/hr (Budgeted hours - Actual hours)

I.e. Budgeted hours = SH/unit x budgeted units

SALES VARIANCE

1) Sales price variance = Actual Sales volume (Actual SP - standard selling price)
2) Sales margin Quantity = Std Margin profit (Actual sales QTY – Std sales QTY)

Advantages of using standard costing

- Performance evaluation – Actual results are normally benchmarked with standard costs for calculation of variance.
- Control purposes – They can enable determination of variances hence corrective action can be instituted.
- Forecasting purposes – They enable future costs and revenue to be projected
- Motivation – If realistic standards are set for performance evaluation, they improve employee morale.
- Decision making – Standard cost can be used to decide on what level of activity is achievable within a given period of time given certain resource constraints
- Planning – The planning exercise is normally simplified with an existing set of prices and costs

APPLICATION OF STANDARD COSTING

- It is used in planning.
- Decision-making.
- In performance evaluation
- For cost control purposes
- In product costing and setting of selling price.

Disadvantages of standard costing

1. Many of the standard relies on historical data, which means standards needs to be revised continuously.
2. Very expensive to operate due to the time and information needs.
3. They are difficult to establish

Illustrative Question

Tipple C LTD manufacturers a single product branded ZL. Product ZL requires three types of raw materials namely F, G, and H. The standard cost for one unit of ZL is as follows:

MATERIAL	QTY (KG)	PRICE PER KG (SH.)	TOTAL COST (SH)
F	15	400	6000
G	12	300	3600
H	8	600	4800
STANDARD LOSS	3		
STANDARD YIELD	32		

LABOR	HOURS	RATE PER HOUR	TOTAL COST
DEPARTMENT X	4	1000	4000
Y	2	600	1200

ADDITIONAL INFORMATION:

1. During April 2015, the budgeted production and sales were 4096 Kgs of product ZL at sh. 1,600 per kg.
2. The actual quantities of material and labor used in April 2015 for 120 batches for product ZL were as follows:

	Quantity	Price per kg	Total cost
F	1680	425	714000
G	1650	280	462000
H	870	640	556800
	Hours	Rate per hour	Total costs
Department X	600	1060	636000
Y	270	560	151200

Actual yield 3648kgs

Required:

1. Material price variance.
2. Material usage variance
3. Material mix Variance
4. Material Yield Variance
5. Labor cost Variance
6. Labor rate variance
7. Labor efficiency variance

SOLUTION

Material cost Variance: (SQ X SP) – (AQ XAP)

Where SQ = 35Kgs of materials =32kgs of output

? = 3648kgs **of output**

=35 x 3648 = 3990kgs

32

F = 3990 X 15/35 = 1710KGS

G = 3990 X 12/35 =1368KGS

H = 3990 X 8/35 = 912KGS

1. Material cost variance: F = 1710 x 400 – 714000 = (30000) A
   G = 1368 x 300 – 462000 = (51600) A
   H = 912 x 600 – 556800 = (9600) A
   91200A
2. **Material price Variance** : AQ(SP –AP)
   F = 1680 (400 – 425) = 42000A
   G = 1650 (300-280) = 33000F
   H = 870 (600 -640) = 34800A
   43800A
3. **Material usage Variance** : SP (SQ – AQ)
   F = 400 (1710 – 1680) = 12000F
   G = 300(1368 – 1650) = 84600A
   H = 600 (912 -870) = 25200F
   47400A
4. Material Mix Variance : (Actual quantity in standard mix – Actual quantity in Actual mix)
   Where: Actual quantity in standard mix.
   F = 4200 x 15/35 = 1800kgs
   G = 4200 x 12/35 = 1440kgs
   H = 4200 x 8/35 = 960kgs

MMV = F = 400 (1800 – 1680) = 48000F
G = 300(1440 – 1650) = 63000A
H = 600 (960 – 870) = 54000F
39000F

5. Material yield variance = SP (Standard quantity in standard mix – Actual qty in std mix)
   F = 400(1710 – 1800) = 36000A
   G = 300(1368 – 1440) = 21600A
   H = 600(912 – 870) = 25200F
6. Labor cost variance : (SHXSR) – (AH X AR)
   Where: SH Department X 1 batch = 4hrs
   120 batch =?
   Department x = 120 x 4 = 480hrs
   Y = 120 x 2 = 240hrs
   Labor cost variance = X = 480 x 1000 – 636000 = 156000A
   Y = 240 x 600 – 151200 = 7200A
   163200A
7. Labor rate variance = AH (SR – AR)
   X = 600 (1000 – 1060) = 36000A
   Y= 270(600 – 560) = 10800F
8. Labor Efficiency Variance : SR (SH – AH)
   X = 1000 (480 – 600) = 120000A
   Y = 600 (240 -270) = 18000A

CPA MAY 2012 Q 4b

1) Material price variance = AQ (SP – AP)
   1. = 12000 (2 – 26400/12000) = 2400A
2) Material usage variance = SP (SQ – AQ) = 2(5 X 1800 – 12000) = 6000A
3) Labor Rate Variance = AH (SR – AR) = 9800 (5 – 44100/9800) = 4900F
4) Labor efficiency variance = SR (SH – AH) = 5 (4 X 1800-9800) = 13000A
5) Fixed overhead volume Variance = Fixed cost/unit (Budgeted units – Actual units)
   a. 40 (2000 -1800) = 8000A
6) Variable overheads Expenditure variance = Variable overhead Rate/hour x Actual hours – Actual variable overheads
   = 1 x (9800 – 9000) = 800F
7) Variable overhead efficiency variance = Variable over rate /hour (SH – AH)
   a. = 1(7200 -98000) = 2600A
8) Fixed overhead Expenditure variance = Budgeted fixed overheads – Actual fixed overheads
   i. Budgeted fixed overhead = fixed over cost/unit x Budgeted units
   40 x 2000 = 8000
   = (40 x 2000 – 100000) = 20000A

CPA DECEMBER 2013 Q 5b

1. Material price variance = AQ (SP – AP)

Exe = 12,500 (4 – 4.40) = 5000A

Wye = 18000(3 – 2.80) = 3600F

Zed = 88500(1 -1.20) = 17700A

2. Material usage Variance = SP (SQ – AQ)

SQ = standard quantity/ unit x Actual units produced

Exe = 4(2 x 6000 – 12500) = 2000A

Wye = 3(3x6000 -18000) = 0

Zed = 1(15x6000-88500) = 1500F

3. Labor Rate variance = AH (SR – AR)

Actual hours paid = 17,500 – 2500 = 15000 hours

LRV = 15000(8-8) = 0A

LRV = 2500(8-12) = 10,000A

4. Labor Efficiency Variance: SR (SH –AH)

8(3 X6000-15000)=24000F

Causes of Variances

In order that variance analysis is of any use, it is essential to precisely determine causes of variances so that management may initiate action to rectify an unfavorable variance.

Reason for Material Price Variance

Following are the possible causes of this variance:

- Change in market price
- Change in delivery cost
- Emergency purchases, which may be due to, upsets in production program, slackness of store keepers, non-availability or funs etc.
- Inefficient buying
- Untimely buying
- Non-availability of standard quality of material
- Loss of previously available purchase discounts
- Improper dispatch instructions
- Change in taxes and duties
- Use of substitute material of different prices

Reason for Material Usage Variance

Following are the possible causes of this variance:

- Careless handling of materials by employees

- Use of poor quality material
- Poor maintenance and defects in machinery
- Change in production design and production methods
- Abnormal wastage
- Pilferage of material due to inadequate inspection
- Wrong mixture of materials
- Improper engineering specifications

Reason for Labor Rate Variance

Following are the possible causes of this variance:

- Change in basic wage rate
- Paying higher wages in seasonal and emergency operations
- Paying overtime for urgent work
- Application of different wage payment systems
- Revision of wages due to an award or litigation or agreement with trade unions
- Appointing unskilled workers

Reason for Labor Efficiency Variance

Following are the possible causes of this variance:

- Appointing low grade workers
- Inadequate training to employees
- Incorrect Instructions
- Us e of sub –standard material requiring rework.
- Use of defective machinery and equipment
- Incompetent supervision
- Poor working conditions
- Poor scheduling of production processes
- Strained personnel relations and worker's dissatisfaction
- Increase in labor turnover

Reason for Overhead Expenditure Variance

Following are the possible causes of this variance:

- Change in price of indirect material and labor
- Non-availability of specified services
- Change in efficiency in use of services
- Over or under utilization of services
- Change in production methods
- Improper use of available facilities

- Ineffective control in spending
- Increase in cost of some external services
- Seasonal conditions
- Improperly set standards

Reason for Overhead Volume Variance

Following are the possible causes of this variance:

- Over or under sales demand
- Change in total capacity in number of men employed, number of shifts or machines used
- Loss of working hours due to inefficient planning
- Change in efficiency of labors and machines
- Working days being more or less than budgeted

Reason for Overhead Efficiency Variance

Following are the possible causes of this variance:

- Poor working conditions
- Inefficiency of labor
- Poor supervision
- Poor scheduling of production processes
- Use of inferior material and defective tools
- Improperly set standards

Difference between standard costing and budgeting

Standard costing	Budgeting
It refers to a projected amount per unit of product per unit of input (such as direct materials, factory overhead)	A budget usually refers to a department or a company's projected revenues, costs or expenses
It shows the unit resource for a single task.	It gives the planned total aggregate costs for a function or cost center.
A standard need not to be expressed in monetary terms.	Budgets is expressed in money terms
The use of a standard is limited to a situation where repetitive actions are performed .	Budgets can be prepared for all functions