

# APPENDIX C

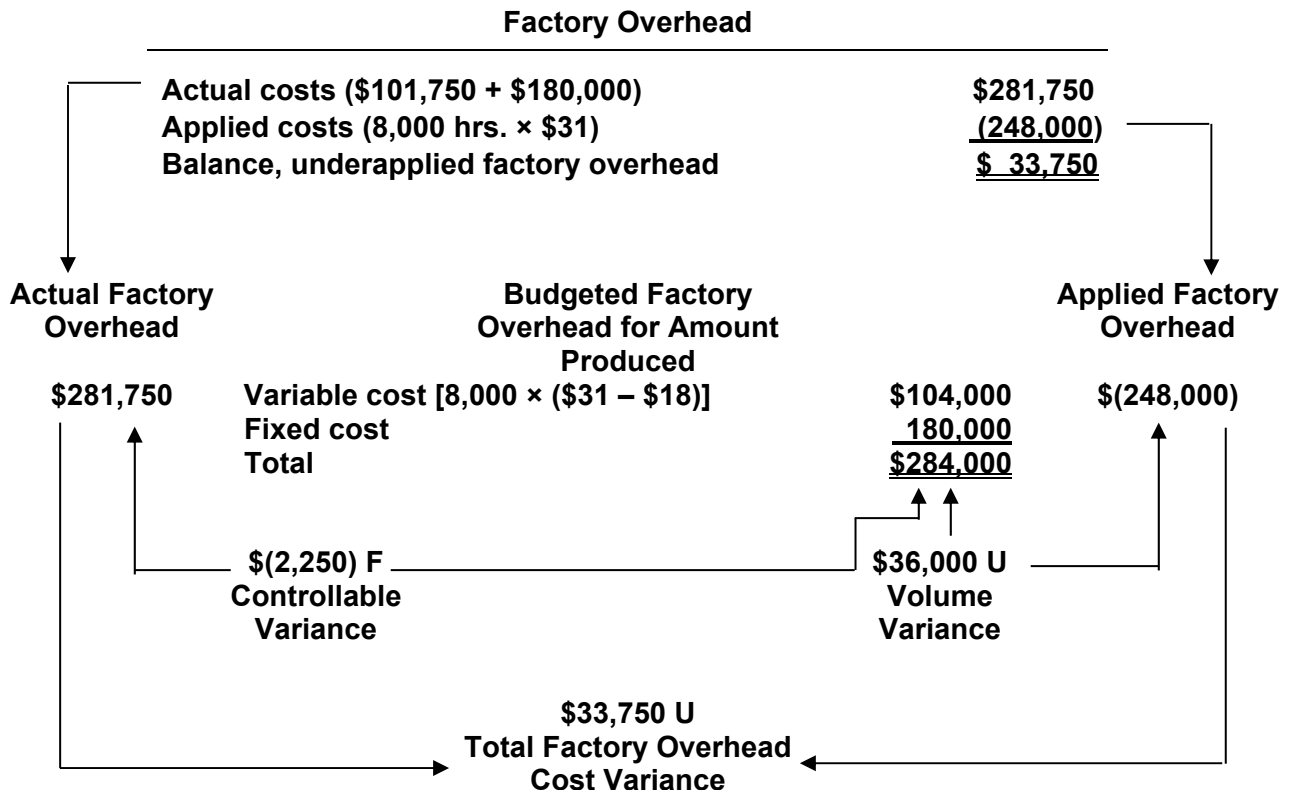
## FACTORY OVERHEAD VARIANCES

E-1

<b>Variable factory overhead controllable variance:</b>		
Actual variable factory overhead cost incurred.....	\$101,750	
Budgeted variable factory overhead for 8,000 hrs. [8,000 × (\$31 – \$18)] .....	<u>(104,000)</u>	
Variance—favorable.....		\$ (2,250)
<b>Fixed factory overhead volume variance:</b>		
Productive capacity at 100% .....	10,000 hrs.	
Standard for amount produced .....	<u>(8,000) hrs.</u>	
Productive capacity not used.....	2,000 hrs.	
Standard fixed factory overhead rate .....	× <u>\$18</u>	
Variance—unfavorable .....		<u>36,000</u>
<b>Total factory overhead cost variance—unfavorable....</b>		<b><u>\$33,750*</u></b>

\*or  $(\$101,750 + \$180,000) - \$248,000 = \$33,750$

### Alternative Computation of Overhead Variances



**E-2**

**a. Controllable variance:**

<b>Actual variable factory overhead</b>		
(\$1,428,000 – \$300,000) .....		<b>\$1,128,000</b>
<b>Standard variable factory overhead at actual production:</b>		
<b>Standard hours for actual production .....</b>	<b>52,000</b>	
<b>Variable factory overhead rate<sup>1</sup> .....</b>	<b>× \$22</b>	
<b>Standard variable factory overhead ..</b>		<b>(1,144,000)</b>
<b>Controllable variance—favorable .....</b>		<b>\$(16,000)</b>

**b. Volume variance:**

<b>Volume at 100% of normal capacity .....</b>	<b>60,000</b>	
<b>Less standard hours .....</b>	<b><u>52,000</u></b>	
<b>Idle capacity .....</b>	<b>8,000</b>	
<b>Fixed overhead rate<sup>2</sup> .....</b>	<b>× \$5</b>	
<b>Volume variance—unfavorable .....</b>		<b><u>40,000</u></b>
<b>Total factory overhead cost variance—unfavorable .....</b>		<b><u>\$24,000</u><sup>3</sup></b>

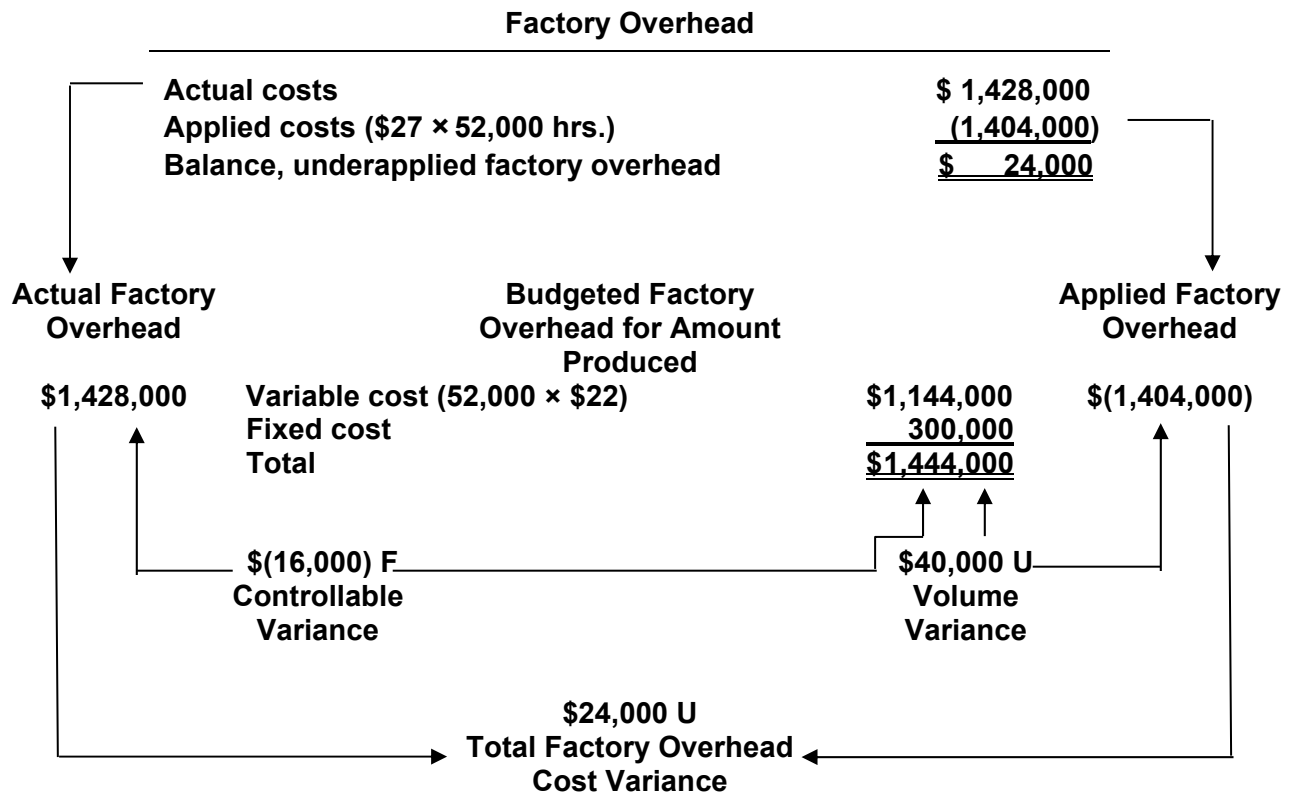
<sup>1</sup>Variable factory overhead rate:  $\frac{\$990,000}{45,000 \text{ hrs.}} = \$22 \text{ per hr.}$

<sup>2</sup>Fixed factory overhead rate:  $\frac{\$300,000}{60,000 \text{ hrs.}} = \$5 \text{ per hr.}$

<sup>3</sup>or  $\$1,428,000 - [(\$22 + \$5) \times 52,000 \text{ hrs.}] = \$24,000$

## E-2, Concluded

### Alternative Computation of Overhead Variances



E-3

In determining the volume variance, the productive capacity overemployed (5,000 hours) should be multiplied by the standard fixed factory overhead rate of \$3.25 (\$9.00 – \$5.75) to yield a favorable variance of \$16,250. The variance analysis provided by the chief cost accountant incorrectly multiplied the 5,000 hours by the total factory overhead rate of \$9.00 per hour and reported it as *unfavorable*.

A correct determination of the factory overhead cost variances is as follows:

**Variable factory overhead controllable variance:**

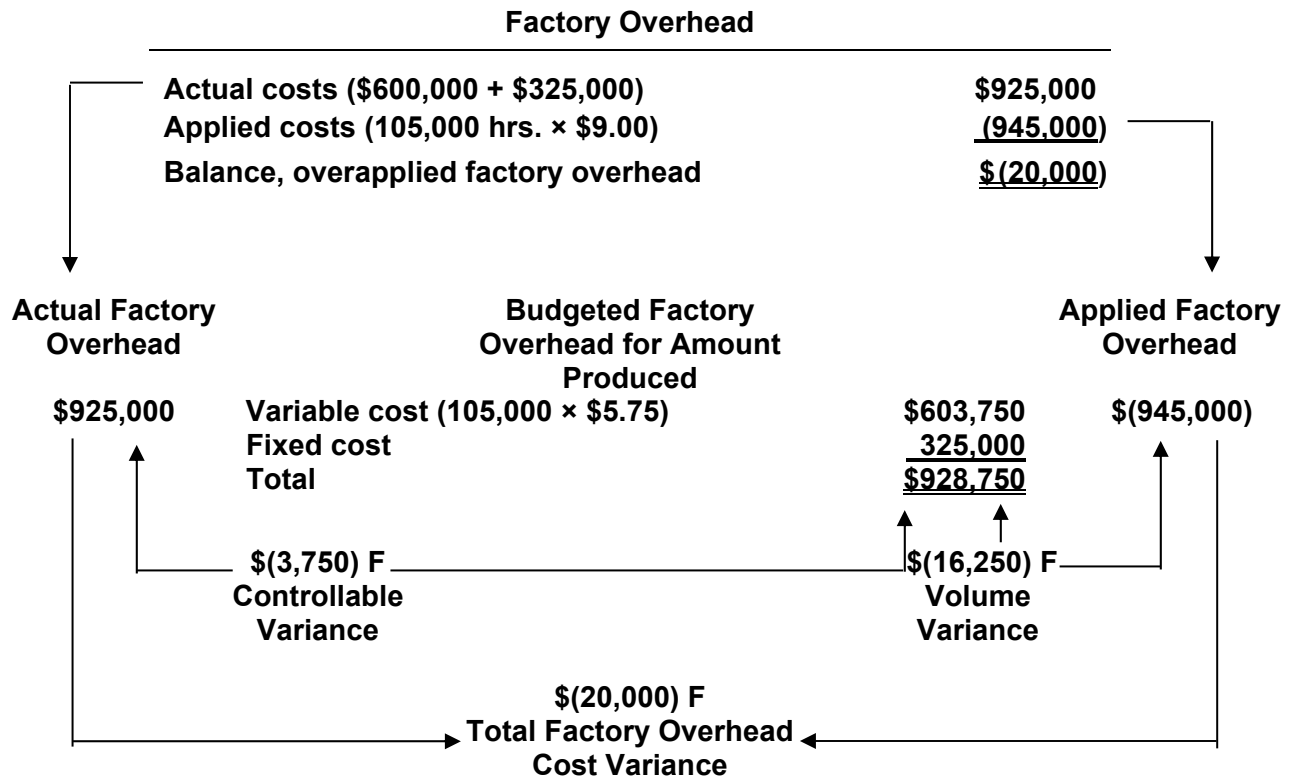
Actual variable factory overhead cost incurred .....	\$600,000	
Budgeted variable factory overhead for 105,000 hours (105,000 × \$5.75).....	<u>(603,750)</u>	
Variance—favorable.....		\$ (3,750)

**Fixed factory overhead volume variance:**

Productive capacity at 100% .....	100,000 hrs.	
Standard for amount produced.....	<u>(105,000)hrs.</u>	
Productive capacity overemployed .....	(5,000)hrs.	
Standard fixed factory overhead rate .....	× <u>\$3.25</u>	
Variance—favorable.....		<u>(16,250)</u>

**Total factory overhead cost variance—favorable.....** \$ (20,000)

**Alternative Computation of Overhead Variances**



E-4

	A	B	C	D	E
1	<b>TOPEKA PLASTICS INC.</b>				
2	<b>Factory Overhead Cost Variance Report—Trim Department</b>				
3	<b>For the Month Ended July 31</b>				
4	Productive capacity for the month		30,000 hrs.		
5	Actual productive capacity used for the month		28,000 hrs.		
6					
7			<b>Budget</b>	<b>Variances</b>	
8			<b>(at Actual</b>		
9		<b>Actual</b>	<b>Production)</b>	<b>Unfavorable</b>	<b>Favorable</b>
10	<b>Variable factory overhead cost:*</b>				
11	Indirect factory labor	\$ 23,250	\$ 22,400	\$ 850	
12	Power and light	20,000	20,160		\$ (160)
13	Indirect materials	<u>11,100</u>	<u>10,080</u>	1,020	
14	Total variable factory overhead cost	<u>\$ 54,350</u>	<u>\$ 52,640</u>		
15	<b>Fixed factory overhead cost:</b>				
16	Supervisory salaries	\$ 50,000	\$ 50,000		
17	Depreciation of plant and equipment	33,100	33,100		
18	Insurance and property taxes	<u>11,400</u>	<u>11,400</u>		
19	Total fixed factory overhead cost	<u>\$ 94,500</u>	<u>\$ 94,500</u>		
20	Total factory overhead cost	<u>\$148,850</u>	<u>\$147,140</u>		
21	Total controllable variances			<u>\$1,870</u>	<u>\$ (160)</u>
22					
23	Net controllable variance—unfavorable				\$1,710
24	<b>Volume variance—unfavorable:</b>				
25	Idle hours at the standard rate for fixed factory overhead— (30,000 hrs. – 28,000 hrs.) × \$3.15**				<u>6,300</u>
26	Total factory overhead cost variance—unfavorable				<u>\$8,010</u>

\*The budgeted variable factory overhead costs are determined by multiplying 28,000 hours by the variable factory overhead cost rate for each variable cost category. These rates are determined by dividing each budgeted amount (estimated at the beginning of the month) by the planned (budgeted) volume of 25,000 hours as shown below.

$$\$22,400 = (\$20,000 \div 25,000 \text{ hrs.}) \times 28,000 \text{ hrs.}$$

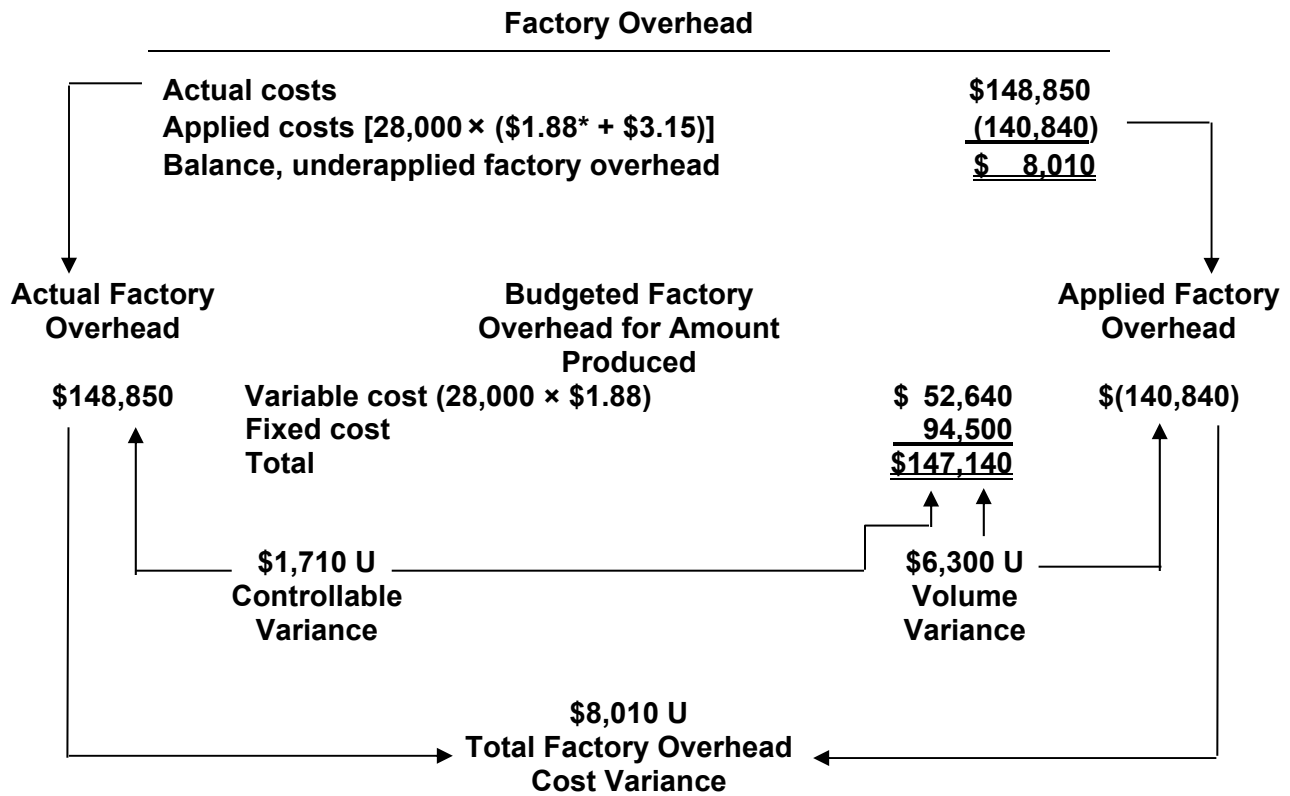
$$\$20,160 = (\$18,000 \div 25,000 \text{ hrs.}) \times 28,000 \text{ hrs.}$$

$$\$10,080 = (\$9,000 \div 25,000 \text{ hrs.}) \times 28,000 \text{ hrs.}$$

\*\*Fixed factory overhead rate:  $\frac{\$94,500}{30,000 \text{ hrs.}} = \$3.15 \text{ per hr.}$

**E-4, Concluded**

**Alternative Computation of Overhead Variances**



**\*\$47,000 ÷ 25,000 hours budgeted at the beginning of the month**

P-1

	A	B	C	D	E
1	<b>SEABURY, INC.</b>				
2	<b>Factory Overhead Cost Variance Report—Assembly Department</b>				
3	<b>For the Month Ended October 31</b>				
4	Normal capacity for the month		25,000 hrs.		
5	Actual production for the month		23,500 hrs.		
6					
7			Budget		
8			(at Actual	Variances	
9		Actual	Production)	Unfavorable	Favorable
10	<b>Variable factory overhead costs:*</b>				
11	Indirect factory wages	\$140,500	\$141,000		\$ (500)
12	Power and light	28,600	27,730	\$870	
13	Indirect materials	15,220	15,980		(760)
14	Total variable cost	<u>\$184,320</u>	<u>\$184,710</u>		
15	<b>Fixed costs:</b>				
16	Supervisory salaries	\$125,000	\$125,000		
17	Depreciation of plant and equipment	49,000	49,000		
18	Insurance and property taxes	29,750	29,750		
19	Total fixed cost	<u>\$203,750</u>	<u>\$203,750</u>		
20	Total factory overhead cost	<u>\$388,070</u>	<u>\$388,460</u>		
21	Total controllable variances			<u>\$870</u>	<u>\$ (1260)</u>
22					
23	Net controllable variance—favorable				\$ (390)
24	<b>Volume variance—unfavorable:</b>				
25	Idle hours at the standard rate for fixed factory overhead— (25,000 hrs. – 23,500 hrs.) × \$8.15**				<u>12,225</u>
26	Total factory overhead cost variance—unfavorable				<u>\$11,835</u>

\*The budgeted variable costs are determined by multiplying the budgeted variable costs per unit at planned production times the actual production for October. The budgeted variable costs per unit are determined by dividing the budgeted variable cost for October by the planned production for October. Thus, the budgeted variable costs are determined as follows:

Indirect factory wages:  $[(\$150,000 \div 25,000 \text{ units}) \times 23,500 \text{ units}] = \$141,000$

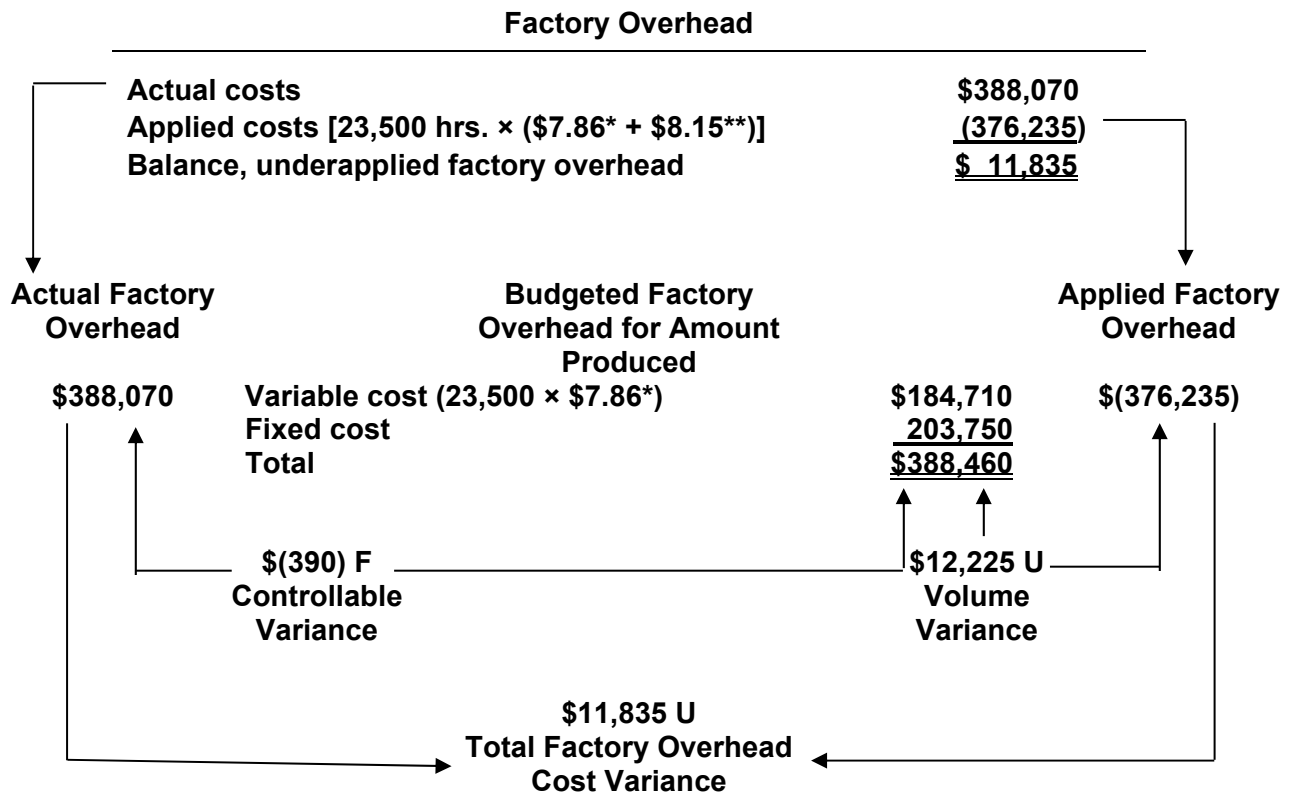
Power and light:  $[(\$29,500 \div 25,000 \text{ units}) \times 23,500 \text{ units}] = \$27,730$

Indirect materials:  $[(\$17,000 \div 25,000 \text{ units}) \times 23,500 \text{ units}] = \$15,980$

\*\* $\$203,750 \div 25,000 \text{ hrs.} = \$8.15$

**P-1, Concluded**

**Alternative Computation of Overhead Variances**



\*\$196,500 ÷ 25,000 hrs. = \$7.86 per hour variable overhead rate

\*\*\$203,750 ÷ 25,000 hrs. = \$8.15



## P-2

The plant manager is placing pressure on the controller because the controllable variance is unfavorable. The claim is that these costs are not variable at all. This claim is difficult to accept. This small company purchases its power from the outside. The power and light bill is variable to the amount of energy used in the plant. Energy usage is likely a function of the number of units produced. Likewise, the supplies are likely variable to machine usage, which is also related to the number of units produced. However, these two costs are not where the problem lies. The problem is with the indirect factory wages.

The indirect wages may not be completely variable. However, the variance is \$28,800, or 40% ( $\$28,800 \div \$72,000$ ) higher than the standard. This is much greater than the 25% difference between the existing production volume and full capacity. In other words, even granting the plant manager's position on the indirect wages still does not explain the overall size of the variance. The expenditure of \$100,800 on indirect wages is more than the \$96,000 ( $\$72,000 \div 75\%$ ) that would have been budgeted for 100% of production. Something appears amiss.

The controller should discuss these matters with the plant manager and attempt to discover why the indirect labor costs are so out of line with the standards. The plant manager has not complained about the standards yet but may do so in the future. Criticizing the standards as too tight is common.