

Waterways Continuing Problem

WCP1 Waterways Corporation is a private corporation formed for the purpose of providing the products and the services needed to irrigate farms, parks, commercial projects, and private homes. It has a centrally located factory in a U.S. city that manufactures the products it markets to retail outlets across the nation. It also maintains a division that provides installation and warranty servicing in six metropolitan areas.

The mission of Waterways is to manufacture quality parts that can be used for effective irrigation projects that also conserve water. By that effort, the company hopes to satisfy its customers, provide rapid and responsible service, and serve the community and the employees who represent them in each community.

The company has been growing rapidly, so management is considering new ideas to help the company continue its growth and maintain the high quality of its products.

Waterways was founded by Will Winkman who is the company president and chief executive officer (CEO). Working with him from the company's inception was Will's brother, Ben, whose sprinkler designs and ideas about the installation of proper systems have been a major basis of the company's success. Ben is the vice president who oversees all aspects of design and production in the company.

The factory itself is managed by Todd Senter who hires his line managers to supervise the factory employees. The factory makes all of the parts for the irrigation systems. The purchasing department is managed by Hector Hines.

The installation and training division is overseen by vice president Henry Writer, who supervises the managers of the six local installation operations. Each of these local managers hires his or her own local service people. These service employees are trained by the home office under Henry Writer's direction because of the uniqueness of the company's products.

There is a small Human Resources department under the direction of Sally Fenton, a vice president who handles the employee paperwork, though hiring is actually performed by the separate departments. Sam Totter is the vice president who heads the sales and marketing area; he oversees 10 well-trained salespeople.

The accounting and finance division of the company is headed by Abe Headman, who is the chief financial officer (CFO) and a company vice president; he is a member of the Institute of Management Accountants and holds a certificate in management accounting. He has a small staff of Certified Public Accountants, including a controller and a treasurer, and a staff of accounting input operators who maintain the financial records.

A partial list of Waterways' accounts and their balances for the month of November 2012 follows.

Accounts Receivable	\$ 275,000
Advertising Expenses	54,000
Cash	260,000
Depreciation—Factory Equipment	16,800
Depreciation—Office Equipment	2,400
Direct Labor	42,000
Factory Supplies Used	16,800
Factory Utilities	10,200
Finished Goods Inventory, November 30	68,800
Finished Goods Inventory, October 31	72,550
Indirect Labor	48,000
Office Supplies Expense	1,600
Other Administrative Expenses	72,000
Prepaid Expenses	41,250
Raw Materials Inventory, November 30	52,700
Raw Materials Inventory, October 31	38,000
Raw Materials Purchases	184,500
Rent—Factory Equipment	47,000
Repairs—Factory Equipment	4,500
Salaries	325,000
Sales	1,350,000
Sales Commissions	40,500
Work In Process Inventory October 31	52,700
Work In Process Inventory, November 30	42,000

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Instructions

- (a) Based on the information given, construct an organizational chart of Waterways Corporation.
- (b) A list of accounts and their values are given above. From this information, prepare a cost of goods manufactured schedule, an income statement, and the current assets section of the balance sheet for Waterways Corporation for the month of November 2012.

Waterways Continuing Problem

(This is a continuation of the Waterways Problem from Chapter 1)

WCP2 Waterways has two major public-park projects to provide with comprehensive irrigation in one of its service locations this month. Job J57 and Job K52 involve 15 acres of landscaped terrain which will require special-order sprinkler heads to meet the specifications of the project. Using a job cost system to produce these parts, the following events occurred during December 2012.

Raw materials were requisitioned from the company's inventory on December 2 for \$5,061; on December 8 for \$1,059; and on December 14 for \$3,459. In each instance, two-thirds (2/3) of these materials were for J57 and the rest for K52.

Six time tickets were turned in for these two projects for a total amount of 18 hours of work. All the workers were paid \$16.50 per hour. The time tickets were dated December 3, December 9, and December 15. On each of those days, 6 labor hours were spent on these jobs, two-thirds (2/3) for J57 and the rest for K52.

The predetermined overhead rate is based on machine hours. The expected machine hour use for the year is 2,112 hours, and the anticipated overhead costs are \$840,576 for the year. The machine were used by workers on projects K52 and J57 on December 3, 9, and 15. Six machine hours were used for project K52 (2 each day), and 8.5 machine hours were used for project J57 (2.5 the first day and 3 each of the other days). Both of these special orders were completed on December 15, producing 237 sprinkler heads for J57 and 142 sprinkler heads for K52.

Additional job order activities during this period of time included:

- Dec. 1 Purchased raw materials from Durbin Supply Company on account for \$53,200.
- Dec. 2 Issued \$40,000 of direct materials from the company's inventory to jobs other than K52 and J57 and \$3,000 of indirect materials.
- Dec. 12 Paid Waterways' factory salaries and wages in the amount of \$65,000.
- Dec. 13 Paid the factory's water bill of \$9,000.
- Dec. 18 Transferred \$50,000 of costs from other completed jobs to finished goods.
- Dec. 21 Paid the factory's electric bill of \$12,000 for Waterways' factory.
- Dec. 31 Made adjusting entries for the factory that included accrued property taxes of \$12,000, prepaid insurance of \$8,800, and accumulated depreciation of \$16,000.

Instructions

- (a) Set up the job cost sheets for Job No. J57 and Job No. K52. Determine the total cost for each manufacturing special order for these jobs. (Round unit cost to nearest cent.)
- (b) Journalize the activities from these job cost sheets in the general journal. Also journalize the other costs that occurred during this period of time.
- (c) Assuming that Manufacturing Overhead has a debit balance of \$3,600, determine whether overhead has been under/over applied and make the adjusting entry.
- (d) Why would Waterways choose machine hours as the cost driver for the overhead rather than direct labor cost? What would Waterways be likely to choose as the cost driver for the overhead for the job of installing the irrigation system and why?

Waterways Continuing Problem

(This is a continuation of the Waterways Problem from Chapters 1 and 2. The asterisk* indicates material discussed in the chapter appendix.)

WCP3 Because most of the parts for its irrigation systems are standard, Waterways handles the majority of its manufacturing as a process cost system. There are multiple process departments. Three of these departments are the Molding, Cutting, and Welding departments. All items eventually end up in the Package department which prepares items for sale in kits or individually.

The following information is available for the Molding department for January.

Work in process beginning:	
Units in process	22,000
Stage of completion for materials	80%
Stage of completion for labor and overhead	30%
Costs in work in process inventory:	
Materials	\$168,360
Labor	67,564
Overhead	17,270
Total costs in beginning work in process	\$253,194
Units started into production in January	60,000
Units completed and transferred in January	58,000
Costs added to production:	
Materials	\$264,940
Labor	289,468
Overhead	60,578
Total costs added into production in January	\$614,986
Work in process ending:	
Units in process	24,000
Stage of completion for materials	50%
Stage of completion for labor and overhead	10%

Instructions

- (a) Prepare a production cost report for Waterways using the weighted-average method.
- *(b) Show the equivalent units for materials and conversion costs if Waterways used FIFO instead of weighted-average.

Waterways Continuing Problem

(This is a continuation of the Waterways Problem from Chapters 1 through 3.)

WCP4 Direct labor or machine hours may not be the appropriate cost driver for overhead in all areas of manufacturing due to the complexities of many manufacturing processes. Many companies use activity-based costing (ABC) which uses multiple drivers (items that consume resources) rather than just one driver to apply overhead to their activities. With ABC, a company can use a cost driver that has a direct cause/effect relationship in its applied overhead costs.

Waterways looked into ABC as a method of costing because of the variety of items it produces and the many different activities in which it is involved. The activities listed below are a sample of possible cost pools for Waterways.

Assembling	Payroll
Billing	Plant supervision
Digging trenches	Product design
Janitorial	Purchasing materials
Machine maintenance	Selling
Machine setups	Testing
Molding	Welding
Packaging	

Instructions

- For each of these cost pools, what would be the likely activity cost driver?
- Using the following information, determine the overhead rates and the actual cost assigned for each of the activity cost pools in a possible ABC system for Waterways.

WATERWAYS CORPORATION

Activity Cost Pools	Cost Drivers	Estimated Overhead	Expected Use of Cost Drivers per Activity	Actual Use of Drivers
Irrigation installation	Labor cost	\$1,998,432	12,960	12,941
Machining (all machine use)	Machine hours	1,670,400	33,408,000	33,409,000
Customer orders	Number of orders	30,636	2,553	2,520
Shipping	none (direct)		N/A	traced directly
Design	Cost per design	820	8	7
Selling	Number of sales calls	350,400	21,900	22,100

- How would you classify each of the following activities by level—unit level, batch level, product level, or facility level?

Testing of products	Machine maintenance
Designing new products	Advertising
Packaging	Equipment setups
Molding	Electricity required to run equipment
Assembling	Requisitioning materials
Depreciation	

- The results of ABC can provide a more accurate picture of costs. Discuss the value of Waterways using this system to determine overhead costs.
 - How might using ABC affect decision making at Waterways?

Waterways Continuing Problem

(This is a continuation of the Waterways Problem from Chapters 1 through 4.)

WCP5 Vice President for Sales and Marketing Sam Totter is trying to plan for the coming year in terms of production needs to meet the sales demand. He is also trying to determine ways in which the company's profits might be increased in the coming year.

Instructions

- (a) Waterways markets a simple water control and timer that it mass-produces. During 2013, the company sold 696,000 units at an average selling price of per solution \$4.20 per unit. The variable expenses were \$1,900,080, and the fixed expenses were \$683,256.
 - (1) What is the product's contribution margin ratio? (Round to nearest whole percentage)
 - (2) What is the company's break-even point in units and in dollars for this product?
 - (3) What is the margin of safety, both in dollars and as a ratio? (Round to nearest whole percentage)
 - (4) If management wanted to increase its income from this product by 10%, how many additional units would have to be sold to reach this income level?
 - (5) If sales increase by 51,000 units and the cost behaviors do not change, how much will income increase on this product?
- (b) Waterways is thinking of mass-producing one of its special-order sprinklers. To do so would increase variable costs for all sprinklers by an average of \$0.70 per unit. The company also estimates that this change could increase the overall number of sprinklers sold by 10%, and the average sales price would increase \$0.20 per unit. Waterways currently sells 491,740 sprinkler units at an average selling price of \$26.50. The manufacturing costs are \$6,863,512 variable and \$2,050,140 fixed. Selling and administrative costs are \$2,651,657 variable and \$794,950 fixed.
 - (1) If Waterways begins mass-producing its special-order sprinklers, how would this affect the company?
 - (2) If the average sales price per sprinkler unit did not increase when the company began mass-producing the special-order sprinkler, what would be the effect on the company?

Waterways Continuing Problem

(This is a continuation of the Waterways Problem from Chapters 1 through 5.)

WCP6

Part 1

Waterways has a sales mix of sprinklers, valves, and controllers as follows.

Annual expected sales:	
Sale of sprinklers	460,000 units at \$26.50
Sale of valves	1,480,000 units at \$11.20
Sale of controllers	60,000 units at \$42.50
Variable manufacturing cost per unit:	
Sprinklers	\$13.96
Valves	\$ 7.95
Controllers	\$29.75
Fixed manufacturing overhead cost (total) \$760,000	
Variable selling and administrative expenses per unit:	
Sprinklers	\$1.30
Valves	\$0.50
Controllers	\$3.41
Fixed selling and administrative expenses (total) \$1,600,000	

Instructions

- Determine the sales mix based on unit sales for each product.
- Using the annual expected sales for these products, determine the weighted-average unit contribution margin for these three products. (Round to two decimal places.)
- Assuming the sales mix remains the same, what is the break-even point in units for these products?

Part 2

Waterways packages some of its products into sets for home installations. One set (small) sells for \$77 with variable costs of production for the set at \$50. Another set (large) sells for \$152 with variable costs of \$100. The parts for the \$77 set take 9 machine hours to produce. The parts for the \$150 set take 20 machine hours to produce.

Instructions

Given the information above, and assuming all of the package sets produced can be sold each month, illustrate the best use of machine hours.

Part 3

The section of Waterways that produces controllers for the company provided the following information.

Sales for month of February: 4,000
Variable manufacturing cost per unit: \$9.75
Sales price per unit: \$42.50
Fixed manufacturing overhead cost (per month for controllers): \$81,000
Variable selling and administrative expenses per unit: \$3.00
Fixed selling and administrative expenses (per month for controllers): \$13,122

Instructions

- Using this information for the controllers, determine the contribution margin ratio, the degree of operating leverage, the break-even point in dollars, and the margin of safety ratio for Waterways Corporation on this product.
- What does this information suggest if Waterways' cost structure is the same for the company as a whole?

Waterways Continuing Problem

(This is a continuation of the Waterways Problem from Chapters 1 through 6.)

WCP7

Part 1

Waterways mass-produces a special connector unit that it normally sells for \$3.90. It sells approximately 35,000 of these units each year. The variable costs for each unit are \$2.30. A company in Canada that has been unable to produce enough of a similar connector to meet customer demand would like to buy 15,000 of these units at \$2.60 per unit. The production of these units is near full capacity at Waterways, so to accept the offer from the Canadian company would require temporarily adding another shift to its production line. To do this would increase variable manufacturing costs by \$0.30 per unit. However, variable selling costs would be reduced by \$0.20 a unit.

An irrigation company has asked for a special order of 2,000 of the connectors. To meet this special order, Waterways would not need an additional shift, and the irrigation company is willing to pay \$3.10 per unit.

Instructions

Given the information above:

- What are the consequences of Waterways agreeing to provide the 15,000 units to the Canadian company? Would this be a wise “special order” to accept?
- Should Waterways accept the special order from the irrigation company?
- What would be the consequences of accepting both special orders?

Part 2

Waterways has discovered that a small fitting it now manufactures at a cost of \$1.00 per unit could be bought elsewhere for \$0.82 per unit. Waterways has fixed costs of \$0.20 per unit that cannot be eliminated by buying this unit. Waterways needs 460,000 of these units each year.

If Waterways decides to buy rather than produce the small fitting, it can devote the machinery and labor to making a timing unit it now buys from another company. Waterways uses approximately 500 of these units each year. The cost of the unit is \$12.66. To aid in the production of this unit, Waterways would need to purchase a new machine at a cost of \$2,345, and the cost of producing the units would be \$9.90 a unit.

Instructions

Given the information above:

- Without considering the possibility of making the timing unit, evaluate whether Waterways should buy or continue to make the small fitting.
- What is Waterways’ opportunity cost if it chooses to buy the small fitting and start manufacturing the timing unit?
 - Would it be wise for Waterways to buy the fitting and manufacture the timing unit? Explain.

Part 3

Waterways is considering the replacement of an antiquated machine that has been slowing down production because of breakdowns and added maintenance. The operations manager estimates that this machine still has 2 more years of possible use. The machine produces an average of 50 units per day at a cost of \$6.50 per unit, whereas other similar machines are producing twice that much. The units sell for \$8.50. Sales are equal to production on these units, and production runs for 260 days each year. The replacement machine would cost \$55,000 and have a 2-year life.

Instructions

Given the information above, what are the consequences of Waterways replacing the machine that is slowing down production because of breakdowns?

Waterways Continuing Problem

(This is a continuation of the Waterways Problem from Chapters 1 through 7.)

WCP8 Waterways uses time and material pricing when it bids on irrigation projects. Budgeted data for 2013 are as follows.

	Time Charges	Material Loading Charges
Labor wages (5,750 hours)	\$240,000	
Supervisor's salary		\$ 60,000
Clerical and accountant wages	60,000	4,000
Irrigation supplies manager		40,000
Overhead	<u>53,950</u>	<u>21,000</u>
Total	<u>\$353,950</u>	<u>\$125,000</u>

Waterways has budgeted for 5,750 labor hours. It desires a \$14 profit margin per hour of labor and 16% profit on materials. It estimates the total invoice cost of materials in 2012 will be \$640,000.

Instructions

- (a) Compute the rate per hour of labor. (Round to two decimal places.)
- (b) Compute the material loading charge. (Round to two decimal places.)
- (c) Waterways has received a request for a bid to do a parkway for the city. The irrigation manager estimates that it will take about a month to complete the project and require 480 hours of labor and \$80,000 of materials. Compute the total estimated bid for the parkway project.

Waterways Continuing Problem

(This is a continuation of the Waterways Problem from Chapters 1 through 8.)

WCP9 Waterways Corporation is preparing its budget for the coming year, 2014. The first step is to plan for the first quarter of that coming year. Waterways gathered the following information from the managers.

Sales

Unit sales for November 2013	112,500
Unit sales for December 2013	102,100
Expected unit sales for January 2014	113,000
Expected unit sales for February 2014	112,500
Expected unit sales for March 2014	116,000
Expected unit sales for April 2014	125,000
Expected unit sales for May 2014	137,500
Unit selling price	\$12

Waterways likes to keep 10% of the next month's unit sales in ending inventory. All sales are on account. 85% of the Accounts Receivable are collected in the month of sale, and 15% of the Accounts Receivable are collected in the month after sale. Accounts receivable on December 31, 2013, totaled \$183,780.

Direct Materials

<u>Item</u>	<u>Amount Used per Unit</u>	<u>Inventory, Dec. 31</u>
Metal	1 lb @ 58¢ per lb.	5,177.5 lbs
Plastic	12 oz @ 6¢ per oz	3,883.125 lbs
Rubber	4 oz @ 5¢ per oz	1,294.375 lbs
	<u>2 lbs per unit</u>	<u>10,355.0 lbs</u>

Metal, plastic, and rubber together are 75¢ per pound per unit.

Waterways likes to keep 5% of the materials needed for the next month in its ending inventory. Payment for materials is made within 15 days. 50% is paid in the month of purchase, and 50% is paid in the month after purchase. Accounts Payable on December 31, 2013, totaled \$120,595. Raw Materials on December 31, 2013, totaled 11,295 pounds.

Direct Labor

Labor requires 12 minutes per unit for completion and is paid at a rate of \$8 per hour.

Manufacturing Overhead

Indirect materials	30¢ per labor hour
Indirect labor	50¢ per labor hour
Utilities	45¢ per labor hour
Maintenance	25¢ per labor hour
Salaries	\$42,000 per month
Depreciation	\$16,800 per month
Property taxes	\$ 2,675 per month
Insurance	\$ 1,200 per month
Janitorial	\$ 1,300 per month

Selling and Administrative

Variable selling and administrative cost per unit is \$1.60.

Advertising	\$15,000 a month
Insurance	\$ 1,400 a month
Salaries	\$72,000 a month
Depreciation	\$ 2,500 a month
Other fixed costs	\$ 3,000 a month

Other Information

The Cash balance on December 31, 2013, totaled \$100,500, but management has decided it would like to maintain a cash balance of at least \$800,000 beginning on January 31, 2014. Dividends are paid each month at the rate of \$2.50 per share for 5,000 shares outstanding. The company has an open line of credit with Romney's Bank. The terms of the agreement requires borrowing to be in \$1,000 increments at 8% interest. Waterways borrows on the first day of the month and repays on the last day of the month. A \$500,000 equipment purchase is planned for February.

Instructions

For the first quarter of 2014, do the following.

- (a) Prepare a sales budget.
- (b) Prepare a production budget.
- (c) Prepare a direct materials budget. (Round to nearest dollar)
- (d) Prepare a direct labor budget. (For calculations, round to the nearest hour.)
- (e) Prepare a manufacturing overhead budget. (Round amounts to the nearest dollar.)
- (f) Prepare a selling and administrative budget.
- (g) Prepare a schedule for expected cash collections from customers.
- (h) Prepare a schedule for expected payments for materials purchases. (Round totals to nearest dollar)
- (i) Prepare a cash budget.

Waterways Continuing Problem

(This is a continuation of the Waterways Problem from Chapters 1 through 9.)

WCP10 Waterways Corporation is continuing its budget preparations. Waterways had the following static budget and overhead costs for March 2014.

WATERWAYS CORPORATION		WATERWAYS CORPORATION	
Manufacturing Overhead Budget		Manufacturing Overhead Costs (Actual)	
(Static) For the Month of March 2014		For the Month of March 2014	
Budgeted production in units	117,500	Production in units	118,500
Budgeted costs		Costs	
Indirect materials	\$ 5,875	Indirect materials	\$ 5,910
Indirect labor	14,100	Indirect labor	14,195
Utilities	11,750	Utilities	11,880
Maintenance	8,225	Maintenance	8,275
Salaries	42,000	Salaries	42,000
Depreciation	16,800	Depreciation	16,800
Property taxes	3,000	Property taxes	3,000
Insurance	1,200	Insurance	1,200
Janitorial	1,500	Janitorial	1,500
Total budgeted costs	<u>\$104,450</u>	Total costs	<u>\$104,760</u>

Waterways produced 118,500 units in March rather than the budgeted number of units.

Instructions

- (a) Prepare a flexible overhead budget based on the following amounts produced.
 - (1) 115,500 units
 - (2) 116,500 units
 - (3) 117,500 units
 - (4) 118,500 units
 - (5) 119,500 units
- (b) Prepare a flexible budget report showing the differences (favorable and unfavorable) in manufacturing overhead costs for the month of March.
- (c) Prepare a responsibility report for the manufacturing overhead for March, assuming only variable costs are controllable.

Waterways Continuing Problem

(This is a continuation of the Waterways Problem from Chapters 1 through 10.)

WCP11 Waterways Corporation uses very stringent standard costs in evaluating its manufacturing efficiency. These standards are not “ideal” at this point, but the management is working toward that as a goal. At present, the company uses the following standards.

Materials		
<u>Item</u>	<u>Per unit</u>	<u>Cost</u>
Metal	1 lb.	63¢ per lb.
Plastic	12 oz.	\$1.00 per lb.
Rubber	4 oz.	88¢ per lb.
Direct Labor		
<u>Item</u>	<u>Per unit</u>	<u>Cost</u>
Labor	15 min.	\$8.00 per hr.
Predetermined overhead rate based on direct labor hours = \$4.28		

The January figures for purchasing, production, and labor are:

The company purchased 229,000 pounds of raw materials in January at a cost of 78¢ a pound.

Production used 229,000 pounds of raw materials to make 115,500 units in January.

Direct labor spent 18 minutes on each product at a cost of \$7.80 per hour.

Overhead costs for January totaled \$54,673 variable and \$73,800 fixed.

Instructions

Answer the following questions about standard costs.

- What is the materials price variance?
- What is the materials quantity variance?
- What is the total materials variance?
- What is the labor price variance?
- What is the labor quantity variance?
- What is the total labor variance?
- What is the total overhead variance?
- Evaluate the variances for this company for January. What do these variances suggest to management?

Waterways Continuing Problem

(This is a continuation of the Waterways Problem from Chapters 1 through 11.)

WCP12 Waterways puts much emphasis on cash flow when it plans for capital investments. The company chose its discount rate of 8% based on the rate of return it must pay its owners and creditors. Using that rate, Waterways then uses different methods to determine the best decisions for making capital outlays.

In 2014 Waterways is considering buying five new backhoes to replace the backhoes it now has. The new backhoes are faster, cost less to run, provide for more accurate trench digging, have comfort features for the operators, and have 1-year maintenance agreements to go with them. The old backhoes are working just fine, but they do require considerable maintenance. The backhoe operators are very familiar with the old backhoes and would need to learn some new skills to use the new backhoes.

The following information is available to use in deciding whether to purchase the new backhoes.

	Old Backhoes	New Backhoes
Purchase cost when new	\$90,000	\$200,000
Salvage value now	\$42,000	
Investment in major overhaul needed in next year	\$55,000	
Salvage value in 8 years	\$15,000	\$90,000
Remaining life	8 years	8 years
Net cash flow generated each year	\$30,425	\$43,900

Instructions

- (a) Evaluate in the following ways whether to purchase the new equipment or overhaul the old equipment. (*Hint:* For the old machine, the initial investment is the cost of the overhaul. For the new machine, subtract the salvage value of the old machine to determine the initial cost of the investment.)
 - (1) Using the net present value method for buying new or keeping the old.
 - (2) Using the payback method for each choice. (*Hint:* For the old machine, evaluate the payback of an overhaul.)
 - (3) Comparing the profitability index for each choice.
 - (4) Comparing the internal rate of return for each choice to the required 8% discount rate.
- (b) Are there any intangible benefits or negatives that would influence this decision?
- (c) What decision would you make and why?

Waterways Continuing Problem

(This is a continuation of the Waterways Problem from Chapters 1 through 12.)

WCP13 Waterways prepared the balance sheet and income statement for the irrigation installation division for 2013. Now the company also needs to prepare a cash flow statement for the same division. The comparative balance sheets for Waterways Corporation's Irrigation Installation Division for the years 2012 and 2013 and the income statement for the year 2013 are presented below.

Additional information:

1. Waterways sold a company vehicle for \$24,000. The vehicle had been used for 10 years. It cost \$80,000 when purchased and had a 10-year life and a \$6,000 salvage value. Straight-line depreciation was used.
2. Waterways purchased with cash new equipment costing \$209,200.
3. Prepaid expenses increased by \$33,960

WATERWAYS CORPORATION—INSTALLATION DIVISION

Balance Sheets

December 31

<u>Assets</u>	<u>2013</u>	<u>2012</u>
Current assets		
Cash	\$ 836,797	\$ 746,681
Accounts receivable	680,750	542,685
Work in process	702,159	—
Inventory	16,766	7,500
Prepaid expenses	76,550	42,590
Total current assets	<u>2,313,022</u>	<u>1,339,456</u>
Property, plant, and equipment		
Land	300,000	300,000
Buildings	450,000	450,000
Equipment	929,400	800,200
Furnishings	40,416	40,416
Accumulated depreciation	(482,523)	(485,204)
Total property, plant, and equipment	<u>1,237,293</u>	<u>1,105,412</u>
Total assets	<u><u>\$3,550,315</u></u>	<u><u>\$2,444,868</u></u>
 <u>Liabilities and Stockholders' Equity</u>		
Current liabilities		
Accounts payable	\$ 157,095	\$ 128,360
Income taxes payable	101,344	79,989
Wages payable	4,517	1,984
Interest payable	1,187	—
Other current liabilities	14,515	15,246
Revolving bank loan payable	15,000	—
Total current liabilities	<u>293,658</u>	<u>225,579</u>
Long-term liabilities		
Note payable	<u>140,000</u>	—
Total liabilities	<u>433,658</u>	<u>225,579</u>
Stockholders' equity		
Common stock	1,250,000	1,250,000
Retained earnings	<u>1,866,657</u>	<u>969,289</u>
Total stockholders' equity	<u>3,116,657</u>	<u>2,219,289</u>
Total liabilities and stockholders' equity	<u><u>\$3,550,315</u></u>	<u><u>\$2,444,868</u></u>

WATERWAYS CORPORATION—INSTALLATION DIVISION
Income Statement
For the Year Ending December 31, 2013

Sales		\$5,536,077
Less: Cost of goods sold		<u>3,132,777</u>
Gross profit		2,403,300
Operating expenses		
Advertising	\$ 50,000	
Insurance	400,000	
Salaries and wages	584,640	
Depreciation	71,319	
Other operating expenses	<u>21,200</u>	
Total operating expenses		<u>1,127,159</u>
Income from operations		1,276,141
Other income		
Gain on sale of equipment	18,000	
Other expenses		
Interest expense	<u>(12,187)</u>	
Net other income and expenses		<u>5,813</u>
Income before income tax		1,281,954
Income tax expense		<u>384,586</u>
Net income		<u><u>\$ 897,368</u></u>

Instructions

For the year 2013:

- (a) Prepare a statement of cash flows using the indirect method.
- *(b) Prepare a statement of cash flows using the direct method.
- (c) Determine free cash flow.

Waterways Continuing Problem

(This is a continuation of the Waterways Problem from Chapters 1 through 13.)

WCP14 The comparative balance sheets of Waterways Corporation's Irrigation Installation Division for the years 2012 and 2013 and the income statements for the year 2012 and 2013 are presented below.

Additional information:

85% of the sales for Waterways were credit sales. There are 5,000 shares outstanding for both years. This is a private corporation, whose shares are not available to the public.

WATERWAYS CORPORATION—INSTALLATION DIVISION Balance Sheets December 31

<u>Assets</u>	<u>2013</u>	<u>2012</u>
Current assets		
Cash	\$ 836,797	\$ 746,681
Accounts receivable	680,750	542,685
Work in process	702,159	—
Inventory	16,766	7,500
Prepaid expenses	76,550	42,590
Total current assets	<u>2,313,022</u>	<u>1,339,456</u>
Property, plant, and equipment		
Land	300,000	300,000
Buildings	450,000	450,000
Equipment	929,400	800,200
Furnishings	40,416	40,416
Accumulated depreciation	(482,523)	(485,204)
Total property, plant, and equipment	<u>1,237,293</u>	<u>1,105,412</u>
Total assets	<u>\$3,550,315</u>	<u>\$2,444,868</u>
 <u>Liabilities and Stockholders' Equity</u>		
Current liabilities		
Accounts payable	\$ 157,095	\$ 128,360
Income taxes payable	101,344	79,989
Wages payable	4,517	1,984
Interest payable	1,187	—
Other current liabilities	14,515	15,246
Revolving bank loan payable	15,000	—
Total current liabilities	293,658	225,579
Long-term liabilities		
Note payable	140,000	—
Total liabilities	<u>433,658</u>	<u>225,579</u>
Stockholders' equity		
Common stock	1,250,000	1,250,000
Retained earnings	1,866,657	969,289
Total stockholders' equity	<u>3,116,657</u>	<u>2,219,289</u>
Total liabilities and stockholders' equity	<u>\$3,550,315</u>	<u>\$2,444,868</u>

WATERWAYS CORPORATION—INSTALLATION DIVISION
Income Statements
For the Year Ending December 31

	2013	2012
Sales	\$5,536,077	\$4,957,266
Less: Cost of goods sold	3,132,777	2,807,316
Gross profit	2,403,300	2,149,950
Operating expenses		
Advertising	50,000	48,000
Insurance	400,000	400,000
Salaries and wages	584,640	554,640
Depreciation	71,319	62,319
Other operating expenses	21,200	18,476
Total operating expenses	1,127,159	1,083,435
Income from operations	1,276,141	1,066,515
Other income		
Gain on sale of equipment	18,000	—
Other expenses		
Interest expense	(12,187)	—
Income before income tax	1,281,954	1,066,515
Income tax expense	384,586	319,955
Net income	\$ 897,368	\$ 746,560

Instructions

- (a) Prepare a horizontal analysis of the income statement using 2012 as the base year.
- (b) Prepare a vertical analysis of the income statement for 2013.
- (c) Calculate the following ratios for 2013 and indicate whether the ratio is a liquidity, solvency, or profitability ratio.
 - (1) Asset turnover ratio.
 - (2) Receivables turnover ratio.
 - (3) Average collection period.
 - (4) Current ratio.
 - (5) Debt to total assets ratio.
 - (6) Earnings per share.
 - (7) Profit margin rate.
 - (9) Return on assets ratio.
 - (10) Return on common stockholders' equity ratio.
 - (11) Times interest earned ratio.
- (d) Comment on your findings.