



Center For Agribusiness & Economic Development

Bottled Water Feasibility FR-01-21

The bottled water industry has been around for many years, but until recently sat quietly in a corner. Today hundreds to thousands of bottles can be seen when entering a store or in the check out line. Several of these new labels belong to the major players of the beverage industry, Coke, Pepsi, and Crystal. The industry may have potential to grow but at a cost to the local bottlers.

This paper outlines some of the important factors a potential industry entrant in the bottled water must examine. Most of the material was collected qualitatively from conversations with consultants, equipment providers, and professional associations.

The final section of this paper is an interpretation of the economic feasibility study that was performed by the Center for Agribusiness and Economic Development.

Market

According to the best information, the Atlanta and Georgia market will be one of the harder markets in which to create a start up company. At the moment the Atlanta market is controlled by Coke and Crystal. These two companies are rumored to make up over 85% of the market, an issue of concern any new entrant. The control and advantage of these two large producers can be seen in distribution channels, advertising budgets, product cost, and customer base. One consultant mentioned for every customer a firm needs to invest \$300 to \$350 in advertising. One of the problems when entering the market is that when people buy water it is usually because of low price, location (next to register), or brand recognition. Water is not similar to markets where taste may become a market factor.

The author assumes individual brands of small sized bottled water have an elastic demand curve or is very price sensitive. When the price increases, people will look for substitutes. So, if one maker increases price, people will opt to purchase another brand.

International Water Life Company suggested one of the big sellers in the water market is the service provided. For instance, home and office delivery of five-gallon jugs and different water types. People perceive different types of water (distilled, purified, spring) with distinguishing features. The perceived hot seller presently is spring water. Some companies such as Dannon are even offering flavored water. This may sound silly, but the company insists it is still water because it has no calories.

Every contact stated that the small size bottles, 16 ounces or smaller, market is mature. If anyone is going to just now get into the business, it was suggested exploring the 5-gallon market. The different size bottles effects operations dramatically in cost of production and delivery cost.

While the opportunity may exist for someone to penetrate the market, the amount of time to penetration in becoming competitive with the major players is prohibitive. Coke bottles water almost as a convenience. They already have the bottling equipment and water on hand from soda production, providing a convenient way to move a by-product or excess supply. The distribution channels (trucks, store space, etc) and brand name recognition for Coke is already established. So, why not bottle? A newcomer will need to create all this plus pay start up costs.

Equipment Cost

Equipment cost projections were difficult to make with confidence. Reasons for this were: 1. Each bottling plant has individuality. 2. Equipment varied by what was needed and 3. Regional price fluctuation.

First, every consultant contacted mentioned that it is impossible to estimate as no two plants in the United States use the same equipment or bottle the same number of bottles. The bottling equipment can run from as little as 300 bottles per hour to 3000 bottles per hour. This depended on the plants market possession, distribution capabilities, and water capacity. It was suggested that even if a plant had a large capacity of water, they should start slow and grow into the market instead of jumping in with a huge investment.

Second, some plants do not need all the equipment of others. The equipment varied from flushing units, rinsing units, labelers, different water treatment systems (ozone, electrical, dosification pumps, carbon GAC filters, multi media filtration, and repressurization skid), bottling equipment, labelers, etc. A precise idea of the needed equipment is needed for a proper feasibility study.

Finally, prices in areas differ significantly. The author concluded from conversations with consultants that the bottling equipment distribution companies act like local cable or phone companies. They are not monopolies but price controlled. If one notices when they look to install cable there is usually only one firm in that particular area. This is also true for local phone service. This "non" monopoly attitude has been taken with the suppliers in water equipment. Regional separation exists with the suppliers and equipment merchandisers. This could happen because there is a limited demand for the equipment.

Variable cost will vary regionally. Variable cost includes labor, utilities, insurance, and shipping. Any cost directly affected by the quantity produced of bottles can be considered variable. When one increases the number of bottles on the line, one increases, the electric used by a certain amount. A rule-of-thumb variable cost given from a consultant for the 5 gallon bottles was \$.99 to \$1.19. This figure includes amortization for the bottle life, electricity, labor, and reasonable freight, cap, label and other small items. The variable cost for the small bottles has been quoted as \$.40 to \$.60 per bottle. Average retail cost for bottled water in the market today appears to be around \$1 for the smaller sizes and \$6 for the 5-gallon bottles. Thus, a gross profit margin of \$4.00 to \$4.80 remains to pay debt, the start up venture, and other fixed costs.

Fixed costs associated with the venture of a water bottling facility will be the depreciation and interest on investment. A significant portion of cost to both the small bottles and large bottles is the freight to the market place. A firm needs to decide if they will purchase a truck or lease a truck. Another start up cost, often overlooked, is the design engineering work for the facility. Estimated fixed costs given by a number of the consultants was \$.65 to \$.85 per bottle. These bottles are the .5L and other small size bottles.

Adding the variable and fixed costs estimates together provides a total cost estimate of around \$1.64 to \$2.04 per bottle. Water suppliers typically supply the water to the retail market at \$4.00 per bottle wholesale, (International Bottle Water Association). Three different groups informed the author that the bottle water industry is a tight knit community. Newcomers often get squeezed when enemies form alliances to keep the community small. It was suggested that a newcomer investigate bulk bottling. This will mean delivering their water to a presently operating bottling plant and then apply their own label. This does a couple things. It allows the newcomer to get his/her foot in the door and get their label out into the market. Experimenting with their label in the market first permits the newcomer the opportunity to see if his/her brand floats and does this with little investment.

Economic Feasibility

The numbers used for this analysis came from International Water Life Company, Pure Water, International Bottled Water Association and the Center for Agribusiness and Economic Development. On occasion a number was estimated based on the best possible information available. The spreadsheet model allows for flexibility by having the ability to change any number or function related to the figures.

The plant used in this study was a 5-gallon bottling facility with a speed of 1200 bottles per hour. The cost figures are on the low side if one wishes to use a 16 ounce bottle. The plant operates 6 hours per day. Producing 7,200 bottles of water daily using 36,000 gallons of water. A portion of the remaining gallons available, 48,000, is used for rinsing and washing of bottles. The plant has a storage tank so water is always on hand. All bottling equipment is run by electricity. In addition to the bottling equipment, this includes purchases for loading equipment (fork lifts, conveyor belts) and lease delivery equipment (trucks).

Income

The calculated income came from the production capability of the plant multiplied by the average price per bottle in the Atlanta area. In addition, there is a cooler rental income added in for the final revenue. Most 5-gallon bottle plants rent the coolers needed for serving that bottle size. These coolers are often seen in office buildings and private dwellings. The rental fee runs \$20-35 per cooler depending on the type. Our rental income used the \$25 rental fee.

Direct Costs

The numbers used for this direct cost were the replacement bottles. This cost is relatively low since the bottles can be reused after proper cleaning. It is recommended the bottler charge a refundable fee for the bottle. This protects the bottler from loss associated with misuse by the customer.

Direct Labor

Labor cost calculations include the administration and the hourly labor. This analysis gave a modest \$40,000 annual salary to the Chief Officer, assuming the officer would be the owner. A bookkeeper was hired at the going rate in the classified ads. The other staff includes bottlers, maintenance people, drivers, loaders, mechanics, and fork lift operators. The hourly wage is set at \$10 and the fringe benefits calculated were 10% of the hourly wage total. The total annual amount spent on labor is \$815,816, adding fringe benefits it becomes \$954,504. The employees work 6-hour shifts 5 days in a row. The next lower bottling equipment per hour was more expensive than the 1200bph. The equipment has the ability to expand the operation in the future based on the need. The model used is working at a 50% capacity. Partially due to the amount of water available, learning curve experience, and pinpoint the diminishing marginal return.

Other Direct Costs

These costs cover taxes, insurance, utilities, repairs, maintenance, operating materials, miscellaneous cost, and the leasing of delivery trucks. Most of these costs have a marginal function to the number of bottles produced. Meaning as the number of bottles increases the cost will marginally increase as well. Leasing trucks appeared to be a better idea than purchasing trucks. The company leases the trucks at \$40,000 a year without drivers. The trucks are a necessity in moving the water to the market.

Plant Equipment

The plant equipment covers everything from the start to finish of the bottled water process. A water treatment system is included in this price. However, one may only need a portion of this treatment system. The equipment allows for the bottle's brand name to be placed on the bottle via shrink-wraps. Various pieces of equipment are optional such as the leak detector, but made sense by saving time and money. The total plant cost was \$3,387,695. The largest percentage of this, 89%, went to purchasing the bottles. However this had a tremendous depreciation for the life of the bottles was assumed to be three years. People have mentioned reusing them after that time period but the firm has to be careful about overusing. Overuse without the proper treatment has the potential to spread germs and bacteria.

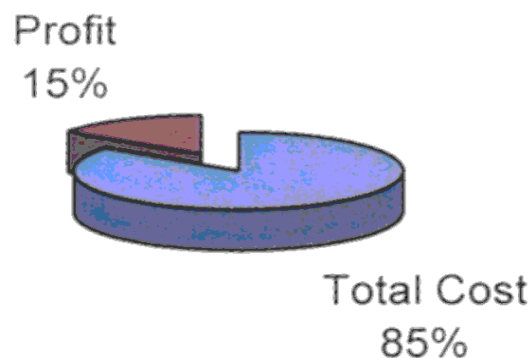
Total Cost

Total costs; consist of variable costs and fixed costs. The total cost for this operation based on the economic feasibility analysis is \$7,866,222. This is for operational cost and does not include debt repayment. The largest portion of this cost was interest charged on the investment.

Profit/ Loss

The standard profit/ loss formula is: Profit/Loss = Gross Revenues – Total Cost. Using the information provided by industry consultants and different equipment providers and the income numbers based on the current market, the hypothetical plant has a projected positive return. However, a great portion of this profit should be allocated towards debt repayment.

Annualized Bottled Water Income Statement



Impact Analysis

An important part of feasibility studies is direct and indirect effect of the new venture to the community. These effects can be seen in added retail spending, taxes and population growth. To estimate these impacts an input/output model for the state of Georgia was developed using IMPLAN software. This model was then modified to fit the bottled water industry producing the equivalent gallons of water per year as the plant in the study. The model captures relationships between industries in the state and shows a change in one industry affects others. The model also shows changes in output, employment and the impact on taxes. One limitation to this model is the backwards linkages used to produce the results. However, it is estimated this limitation is of minor significance.

The assumptions made before the model was placed into the software include the number of employees, bottles produced, and delivery requirements. All assumptions were based off existing plants' numbers researched for comparisons. Therefore these assumptions are as close to reality as can be believed.

The results of the model show the impact of the bottled water facility on Georgia's economy. Producing approximately 2.4 million bottles of water increases employment by 38 jobs. The bottling plant would generate an additional \$10.7 million of economic activity in Georgia and a tax increase of \$1.5 million. The additional spending by the new employees into the community would raise \$2.2 million annually. The indirect spending by the facility would create over \$5 million being added to the economy. If the state offers incentives or subsidies to the plant a new analysis needs to occur.

Conclusion

The bottled water market has the potential for growth and is a good investment for some. The risk associated with this industry appears to be relatively high. Patience is required when attempting to make consistent profits. People have indicated that often 5 years are needed before a firm can actually have a positive cash flow. Others express that the best way to enter the market is slow and then grow into a large competitor. Which avoids a large up front cost with little return.

Based on this analysis completed a bottled water plant operating under the same assumption could make a profit. The model used does not include the cost of market penetration. When using this model for any decision, one needs to realize its limitations by not incorporating the current market structure into the analysis.

Appendix A.

Annual Production Capacity

Misc. Costs

Labor Cost Calculations

Capital Costs Calculations

Capital Costs (cont)

Breakeven Analysis

Profit Chart

Profit vs. Budget Chart

Appendix B

Appendix C

Bottled Water Plant - Total Cost

Annual Production Capacity **11,880,000 gallons** **2,376,000 bottles**
 50% Capacity

	Bottles	Unit Price	Total \$	\$/Gallon	\$/Bottle
Income:					
Bottle Sales	2,376,000	\$ 4.50	10,692,000	0.90	4.50
Rental Dispensers	350	\$ 25	8,750	0.0007	0.00
Total Income			10,700,750		
Direct Costs:					
Bottling Cost:					
Design Work			45,000	0.0038	0.02
Bottle Cost			105,000	0.0088	0.04
Total			150,000	0.0126	0.06
Direct Labor:					
Total Direct Labor			815,816	0.0687	0.34
Fringe Benefits			138,689	0.0117	0.06
Total Direct Costs			954,505	0.0803	0.40
Other Direct Costs:					
Taxes & Insurance			739,304	0.0622	0.31
Utilities			712800	0.0600	0.30
Repairs & Maintenance			62000	0.0052	0.03
Operating Materials			356400	0.0300	0.15
Miscellaneous Costs			273250	0.0230	0.12
Truck Lease			400000	0.0337	0.17
Fuel			412500		
Marketing			245,000		
Total of Other Direct Costs			3,201,254	0.2695	1.35
Fixed Costs:					
Plant Administration		\$	65,000	0.0055	0.03
Depreciation - Building/Start Up Costs			4000	0.0003	0.00
Depreciation - Plant Equipment			3,385,875	0.2850	1.43
Depreciation - Miscellaneous Equipment			237,200	0.0200	0.10
Depreciation - Bottles			604800	0.0509	0.25
Interest on Investment - Building/Start Up Costs			6500	0.0005	0.00
Interest on Investment - Plant Equipment			338,769.50	0.0285	0.14
Interest on Investment - Miscellaneous Equipment			118,600.00	0.0100	0.05
Interest on Working Capital			25000	0.0021	0.01
Total Fixed Costs		\$	4,785,745	0.4028	2.01
Total Cost		\$	9,091,503	0.7653	3.83
Profit/(Loss)			1,609,247	0.1355	0.68
Efficiency			15%		
EBIT			5,841,122	0.4917	2.46

Miscellaneous Costs

	Total \$	\$/gallon	\$/bottle
Office expenses	20000	0.0017	0.008
Equipment lease	7500	0.0006	0.003
Phone/fax/computer lines	12000	0.0010	0.005
Public relations/sundry advertising	90000	0.0076	0.038
Travel/conferences/entertainment	15000	0.0013	0.006
Legal	10000	0.0008	0.004
Accounting	10000	0.0008	0.004
Directors fees	12250	0.0010	0.005
Recording fees	1500	0.0001	0.001
General Insurance	25000	0.0021	0.011
Inventory Insurance	25000	0.0021	0.011
Car leasing and mileage	10000	0.0008	0.004
Contingencies	30000	0.0025	0.013
Sundry furniture and equipment	5000	0.0004	0.002
Total	273250	0.0230	0.115

LABOR COST CALCULATIONS:

Hourly Wage Rate	10
Working Days Per Month	22
Hours/Shift	6

Plant Administration	Number of Employees	\$/Year
CEO	1	40000
Secretary/Bookkeeper	1	25000
Total	2	\$ 65,000

Labor

Sweepers/Helpers	3	38016
Bottlers	12	190080
Loaders	5	79200
Delivery	10	316800
Maintenace	3	47520
Mechanic	2	31680
Forklift Operator	3	47520
Total	38	750816

Grand Total \$ 815,816

Buildings

	Sqft		\$/Sqft
Plant Building	50000		1
Storage Facility	25000		1
Garage	5000		1
Total	80000	\$	80,000

Miscellaneous Equipment Costs

	Number		Price
Service/Fuel Truck	1		60000
Fork Lift	2		31000
Coolers	350		1050000
Total		\$	1,141,000

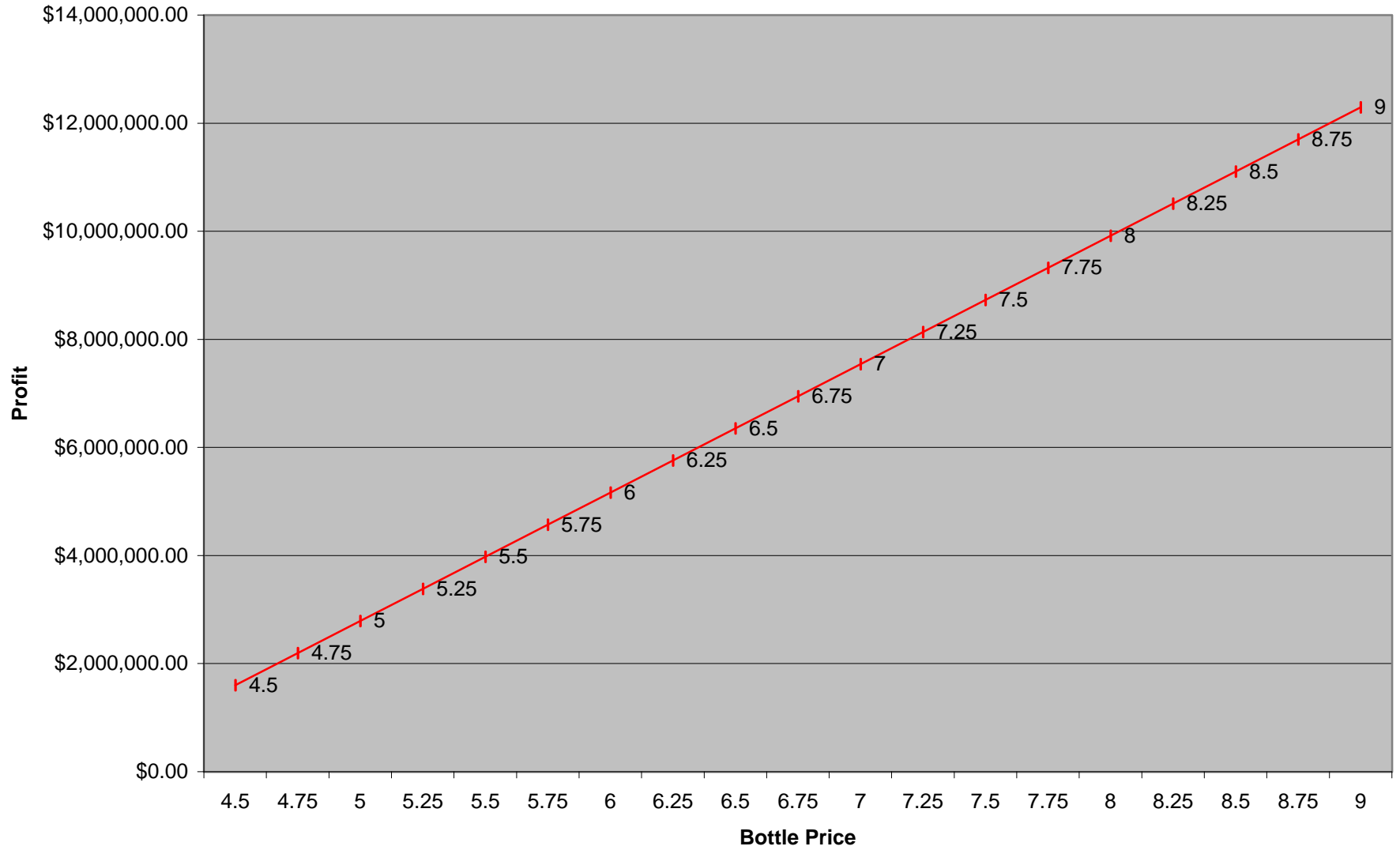
TOTAL CAPITAL COSTS

\$ 1,584,695

Breakeven Analysis

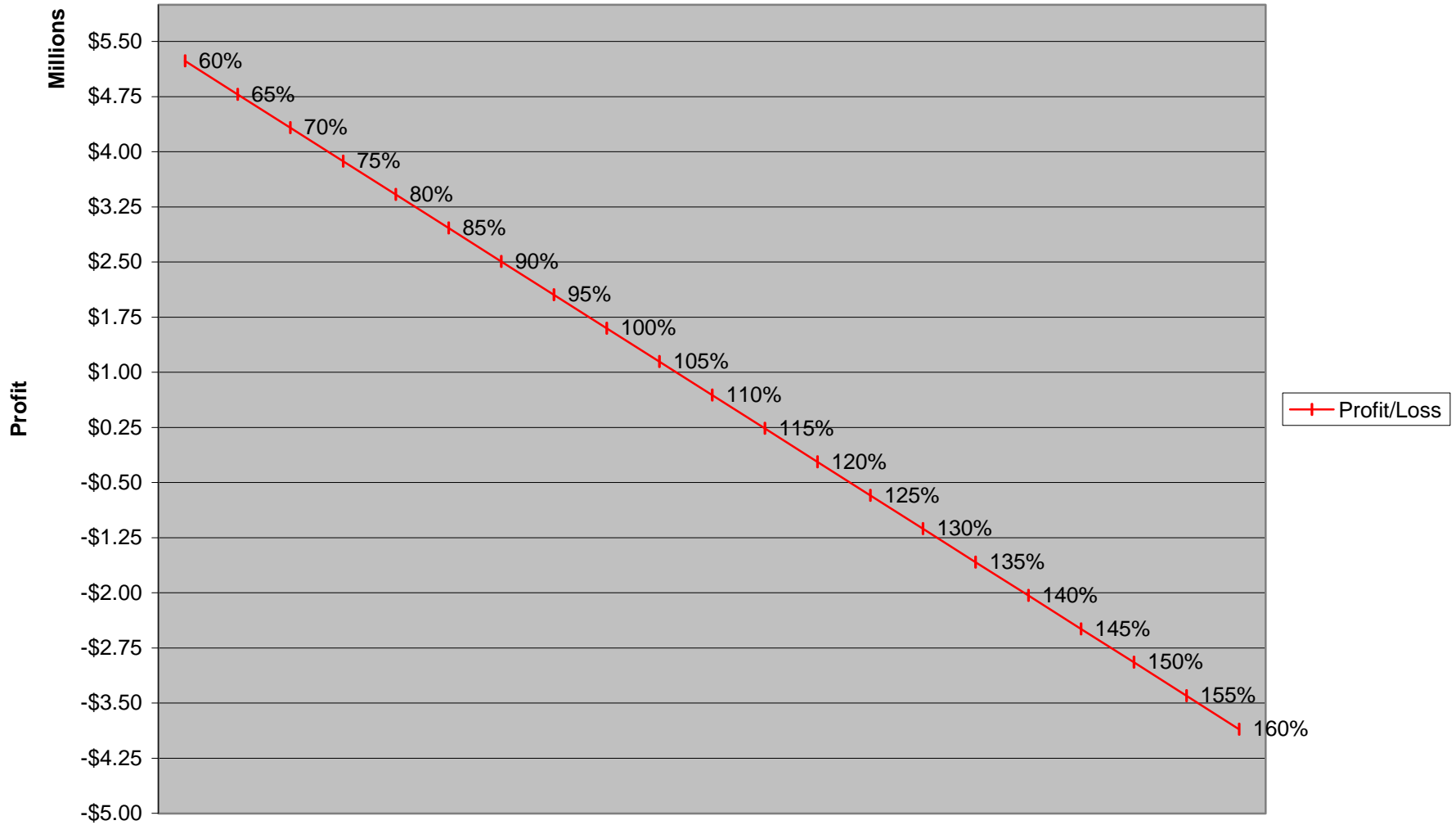
		Cost Per Bottle																								
		\$ 2.00	\$ 2.25	\$ 2.50	\$ 2.75	\$ 3.00	\$ 3.25	\$ 3.50	\$ 3.75	\$ 4.00	\$ 4.25	\$ 4.50	\$ 4.75	\$ 5.00	\$ 5.25	\$ 5.50	\$ 5.75	\$ 6.00	\$ 6.25	\$ 6.50	\$ 6.75	\$ 7.00	\$ 7.25			
Sales Price	\$ 2.00	-	(0.25)	(0.50)	(0.75)	(1.00)	(1.25)	(1.50)	(1.75)	(2.00)	(2.25)	(2.50)	(2.75)	(3.00)	(3.25)	(3.50)	(3.75)	(4.00)	(4.25)	(4.50)	(4.75)	(5.00)	(5.25)			
	\$ 2.25	0.25	-	(0.25)	(0.50)	(0.75)	(1.00)	(1.25)	(1.50)	(1.75)	(2.00)	(2.25)	(2.50)	(2.75)	(3.00)	(3.25)	(3.50)	(3.75)	(4.00)	(4.25)	(4.50)	(4.75)	(5.00)			
	\$ 2.50	0.50	0.25	-	(0.25)	(0.50)	(0.75)	(1.00)	(1.25)	(1.50)	(1.75)	(2.00)	(2.25)	(2.50)	(2.75)	(3.00)	(3.25)	(3.50)	(3.75)	(4.00)	(4.25)	(4.50)	(4.75)			
	\$ 2.75	0.75	0.50	0.25	-	(0.25)	(0.50)	(0.75)	(1.00)	(1.25)	(1.50)	(1.75)	(2.00)	(2.25)	(2.50)	(2.75)	(3.00)	(3.25)	(3.50)	(3.75)	(4.00)	(4.25)	(4.50)			
	\$ 3.00	1.00	0.75	0.50	0.25	-	(0.25)	(0.50)	(0.75)	(1.00)	(1.25)	(1.50)	(1.75)	(2.00)	(2.25)	(2.50)	(2.75)	(3.00)	(3.25)	(3.50)	(3.75)	(4.00)	(4.25)			
	\$ 3.25	1.25	1.00	0.75	0.50	0.25	-	(0.25)	(0.50)	(0.75)	(1.00)	(1.25)	(1.50)	(1.75)	(2.00)	(2.25)	(2.50)	(2.75)	(3.00)	(3.25)	(3.50)	(3.75)	(4.00)			
	\$ 3.50	1.50	1.25	1.00	0.75	0.50	0.25	-	(0.25)	(0.50)	(0.75)	(1.00)	(1.25)	(1.50)	(1.75)	(2.00)	(2.25)	(2.50)	(2.75)	(3.00)	(3.25)	(3.50)	(3.75)			
	\$ 3.75	1.75	1.50	1.25	1.00	0.75	0.50	0.25	-	(0.25)	(0.50)	(0.75)	(1.00)	(1.25)	(1.50)	(1.75)	(2.00)	(2.25)	(2.50)	(2.75)	(3.00)	(3.25)	(3.50)			
	\$ 4.00	2.00	1.75	1.50	1.25	1.00	0.75	0.50	0.25	-	(0.25)	(0.50)	(0.75)	(1.00)	(1.25)	(1.50)	(1.75)	(2.00)	(2.25)	(2.50)	(2.75)	(3.00)	(3.25)			
	\$ 4.25	2.25	2.00	1.75	1.50	1.25	1.00	0.75	0.50	0.25	-	(0.25)	(0.50)	(0.75)	(1.00)	(1.25)	(1.50)	(1.75)	(2.00)	(2.25)	(2.50)	(2.75)	(3.00)			
	\$ 4.50	2.50	2.25	2.00	1.75	1.50	1.25	1.00	0.75	0.50	0.25	-	(0.25)	(0.50)	(0.75)	(1.00)	(1.25)	(1.50)	(1.75)	(2.00)	(2.25)	(2.50)	(2.75)			
	\$ 4.75	2.75	2.50	2.25	2.00	1.75	1.50	1.25	1.00	0.75	0.50	0.25	-	(0.25)	(0.50)	(0.75)	(1.00)	(1.25)	(1.50)	(1.75)	(2.00)	(2.25)	(2.50)			
	\$ 5.00	3.00	2.75	2.50	2.25	2.00	1.75	1.50	1.25	1.00	0.75	0.50	0.25	-	(0.25)	(0.50)	(0.75)	(1.00)	(1.25)	(1.50)	(1.75)	(2.00)	(2.25)			
	\$ 5.25	3.25	3.00	2.75	2.50	2.25	2.00	1.75	1.50	1.25	1.00	0.75	0.50	0.25	-	(0.25)	(0.50)	(0.75)	(1.00)	(1.25)	(1.50)	(1.75)	(2.00)			
	\$ 5.50	3.50	3.25	3.00	2.75	2.50	2.25	2.00	1.75	1.50	1.25	1.00	0.75	0.50	0.25	-	(0.25)	(0.50)	(0.75)	(1.00)	(1.25)	(1.50)	(1.75)			
	\$ 5.75	3.75	3.50	3.25	3.00	2.75	2.50	2.25	2.00	1.75	1.50	1.25	1.00	0.75	0.50	0.25	-	(0.25)	(0.50)	(0.75)	(1.00)	(1.25)	(1.50)			
	\$ 6.00	4.00	3.75	3.50	3.25	3.00	2.75	2.50	2.25	2.00	1.75	1.50	1.25	1.00	0.75	0.50	0.25	-	(0.25)	(0.50)	(0.75)	(1.00)	(1.25)			
	\$ 6.25	4.25	4.00	3.75	3.50	3.25	3.00	2.75	2.50	2.25	2.00	1.75	1.50	1.25	1.00	0.75	0.50	0.25	-	(0.25)	(0.50)	(0.75)	(1.00)			
	\$ 6.50	4.50	4.25	4.00	3.75	3.50	3.25	3.00	2.75	2.50	2.25	2.00	1.75	1.50	1.25	1.00	0.75	0.50	0.25	-	(0.25)	(0.50)	(0.75)			
	\$ 6.75	4.75	4.50	4.25	4.00	3.75	3.50	3.25	3.00	2.75	2.50	2.25	2.00	1.75	1.50	1.25	1.00	0.75	0.50	0.25	-	(0.25)	(0.50)			
	\$ 7.00	5.00	4.75	4.50	4.25	4.00	3.75	3.50	3.25	3.00	2.75	2.50	2.25	2.00	1.75	1.50	1.25	1.00	0.75	0.50	0.25	-	(0.25)			
	\$ 7.25	5.25	5.00	4.75	4.50	4.25	4.00	3.75	3.50	3.25	3.00	2.75	2.50	2.25	2.00	1.75	1.50	1.25	1.00	0.75	0.50	0.25	-			
	\$ 7.50	5.50	5.25	5.00	4.75	4.50	4.25	4.00	3.75	3.50	3.25	3.00	2.75	2.50	2.25	2.00	1.75	1.50	1.25	1.00	0.75	0.50	0.25			

Profit



Profit vs. Budgeted Cost @ \$4.50/bottle

% of Budgeted Costs



Plant equipment provided by International Water Life Company.

Subject: Five Gallon Bottling Plant Quotation:
Ref # 2000/209

Following is a bottling plant quotation for 1200 bottles per hour. This manufacturer is by far less expensive than the 600 BPH system I quoted verbally. Please know that I did throw this together and there may be a couple more components to the water treatment (small) but the major stuff is there. Also, there are lots of optional "bells and whistles", many of which you might want. If this is too high, we'll quote a lower speed system. Just give us a call and tell us your thoughts. If you have interest to proceed, literature will be supplied. The quote is preliminary - for budgetary purposes and still subject to some changes.

Water Treatment System:

Carbon GAC Filter

Price *USD\$ 4,046.00

Multi Media Filtration

Price *USD\$ 4,009.00

Dosification Pumps (chlorine & anti-scalent)

Price *USD\$ 678.00 ea.

Export Crating, Packing & Documentation

Price *USD\$ 504.00

Automatic ozone and repressurization skid

Price *USD \$27,870.00

TOTAL WATER TREATMENT PRICEUSD \$37,107.00

(* included in price total)

1. Automatic ozone and repressurization skid

To repressurize the product water after the contact tank to the filler and also to generate, mix and deliver ozone gas into the contact tank ozone skid fully automatic including oxygen generator, ozone generator, stone system and control, stainless steel contact tank (4 to 5 minute contact time), stainless steel filling pump, state of the art electrical control system, pressure gauge and scfh flow monitor, stainless steel frame. Ozone equipment will deliver a 0.2 ppm to 0.5 ppm residual ozone @ 25° C. (77deg. F) and <100 ppm/tds.

1200 BPH FULLY AUTOMATIC SELF CONTAINED FIVE GALLON BOTTLING PLANT:

This state-of-the-art bottling equipment consists of the following:

- Model:1200 (5- wide)
Production: 1200 bottles per hour nominal capacity
Bottle Sizes: 5 gallon (18.9 liter) round polycarbonate bottle (standard)
Voltage: 440 volts / 60 hertz / 3 phase
Processed water: treated water between 20° C and 25° C
5 gallon cap: Safe guard or similar with or without foam
Compressed Air: 7.0 bar (g) (100 psi) inlet pressure, minimum.
Connection for final rinse: Buyer supplies dedicated line
Connection for filling bottle water: Buyer supplies dedicated line
Machine efficiency: Based on environmental conditions.
Machine shall comply to the following: NSF, CE, and UL standards
Material in contact with product water: sanitary stainless steel and/or
resist all types of corrosion/ food grade.
Clean room air filtration: clean air stream hepa 98% @ 0.3u
Fill valve: 316 stainless steel air actuated valve with teflon seals.

Technical Specification Of The Wash Section:

Section #1: Dwell: a cycle to drain bottle prior to entering new section.
Total Cycle: 15 seconds
Section #2: Wash utilizing a detergent at 58 deg. C. Wash for the bottle.
Total Cycle: 90 seconds*
Section #3: Dwell: a cycle to drain bottle prior to entering new section.
Total Cycle: 15 seconds
Section #6: Sanitize utilizing super sani or other sanitizing agent
Total Cycle: 30 seconds
Section #7: Dwell: a cycle to drain bottle prior to entering new section.
Total Cycle: 15 seconds
Section #10: Final rinse utilizing water for bottling
Total Cycle: 15 seconds
Section #11: Dwell: a cycle to drain bottle prior to entering new section.
Total Cycle: 15 seconds

Brief Summary Of The Equipment:

Complete stainless steel washer/filler/capper machine. Recirculated optional pre-wash station, wash station, with electric heater and temperature control or heat exchanger. Recirculated sanitize station. Final rinse section. Final rinse section water can be recirculated back to pre-wash washer section. All stations complete with high pressure easily twist off type removable spray nozzles.

Automatic bottle unload from the washer to the built-in filler clean chamber. True "hepa" sub micron air filter and enclosed filler clean room, 6" heavy-duty wide stainless steel filler motorized conveyor, and uhmw cone holders. Heavy-duty 2" wash conveyor with self-lubricating uhmw chain guide & stainless steel chain sprockets.

Patent pending "non-spill type" sanitary descending stainless steel filler fill heads. Complete with sanitary clamps. Each fill head is independent, and has an individual regulator, exclusive "no bottle" sensors for each fill head, whereby if there are no bottles under a certain fill head, that fill head will not open, and therefore not waste product water.

Complete with heavy-duty high quality stainless steel cap sorter bowl housed within the clean room. Ozone sanitizer stainless steel spray valve to allow the sanitation of the caps. Stainless steel motorized conveyor cap press on system, stainless steel and 1/4" tempered glass clean chamber structure. With automatic interlocks on all filler windows.

State of the art stainless steel control panel with programmable logic controller (PLC) system and panel mounted human-machine interface (HMI) display on the machine door to allow operator to check on progress of events and also to allow maintenance mode for service requirements, and many other valuable operator functions.

The machine is supplied with full sensors and switches for bottle back up jam prevention and detection.

See additional features shown in the waterworks catalog and features bulletin.

Washer:

- Heavy duty stainless steel rod shaft for the idle and drive.
 - Nylon curtains to separate from each section
 - Special high volume stainless steel twist of nozzles
 - Extra heavy duty frame.ss304 # 4 finish
 - Stainless steel sanitary piping 316*
 - Stainless steel heavy duty infrastructure 304
- *optional

Filler:

- Filling with treated post-ozonated water
- No-spill fill (no waste of water)
- Separate air return
- Tap design to avoid product contamination
- Air in contact with product filtered to 0.2 um.
- No portholes
- Hand-placed dummy bottles (used for sanitization & supplied by buyer)
- Materials in contact with water: 316l stainless steel, viton or EPDM joints
- Stainless steel structures, with drip collector channeling drips towards the same point
- Detectors are made of food quality materials

Capper:

- The capper is made of stainless steel and resists all types of corrosion.
- Stainless steel cap feed station
- Stainless steel checking of cap-feed synchronization.
- Checking of cap flow.
- The cap hopper allows caps to flow without hand assistance
- Blower uses air of filtered quality.
- No lubricated parts will be used above the open bottles.
- Stability of bottle movement to avoid splashing and spillage.

Technical Specifications:

- Pre-washer pump material: stainless steel (TEFC motor)*
- Washer pump material: stainless steel (TEFC motor)
- Sanitize pump material: stainless steel (TEFC motor)
- Heating system: electrical heaters (heating coil plate available option for hot water or steam)
- Human machine interface: full graphics color touch screen
- Electrical enclosure & trunking: stainless steel and nema 4/IP 65
- Conveyor Controls: Electronic variable frequency drives (digital)
- Tank Floats: Stainless steel analogue output
- Clean room around filler: high efficiency particulate air filter
- All glass used in washer & filler: 1/4 inch tempered stamped
- Machine body: stainless steel 304 # 4 finish
- Spray nozzles: Stainless steel full cone high pressure
- Spray pressure: 30-50 psi
- Flat top conveyor chain: 4.5" stainless steel
- Drive chain of washer: 2080 heavy duty pre stretched roller fully supported in UHMW.
- Cones (bottle holders): Ultra High Molecular Weight (UHMW) polyethylene
- Filler feed supply required: 250 US GPM @ 15 psi (4" sanitary clamp type)
- Product water average use (filler only): 100 GPM @ 1200 BPH 5 gal
- Compressed air required: 35 cfm @ 100 psi (1" npt) minimum
- Final rinse water required: 29 gpm @ 40 psi (1" NPT)

optional

Human Machine Interface Digital Diagnostic Display (DDD) Screen LED (PLC - Touch Screen)

Exclusive Digital Diagnostic Display Screen LED (PLC) Programmable Logic control system with man-machine interface, computerization and visual panel mounted display to verify malfunctions, check progress of events, allow maintenance mode for service requirements, animated sequence program to show levels of wash tanks and levels of bottle filling process by means of analogue to digital converters. Operator will also be able to easily change time settings.

Automatic Cap Sorter

Completely self contained stainless steel cap sorter bowl FMC/Syntron brand

Integrated Clean Room

NSF Approved & Certified Filler built-in sanitary clean room chamber area for filler, and capper combination with heavy duty positive air pressure, and dust filtration hepa filter for FDA/GMP guidelines with class 100.

Sample Ports

The prewash tank and wash tank and sanitize tank will be provided with sample ports.

Stainless Steel Nozzle In Washer Station

Stainless steel removable "twist off" type nozzles, that can be easily hand removed and cleaned inside the washer. These nozzles make it easy for the operator to cleaning the nozzles without using and wasting time with tools.

Automatic Empty Bottle Loader System

the bottles are automatically pushed onto the auto load cradle, and the bottles are gently held in place until they are loaded inside the washer. Conveyance of clean bottles from the autoloader to the washer stainless steel conveyor structure stainless steel chain conveyor side-mounted screw-on motor reducers

Packaging For Transportation

Crating, packaging, marking and documentation

Price *USD \$2,500.00

ABOVE FIVE GALLON PLANT PRICE USD \$168,540.00

(* included in price total)

Optional Features:

1. Prewash section station in washer complete prewash station for removal of large surface particles from the polycarbonate bottle before entering the wash section. This will save over-all water usage & about 50% of the detergent usage in washer by keeping the detergent wash tank cleaner
Price USD \$4,872.00

2. Exclusive Patented (pat. No. 5,649,335) Vortex Automatic Bottle Brushing System:

This is probably the most innovative and most useful option for any bottler. It is designed to clean the outside of very dirty bottles in the pre rinse stage of the washer. The brushes are extremely soft, and absolutely do not have any negative effect on the bottle surface. It does however ensure the user a clean, brushed bottle. Also a vortex is created in the bottles, which

increases cleaning efficiency inside & removes any paper or debris inside the bottle. These brushes are easily removable for service and maintenance requirements.

Price USD \$6,132.00

3. Internal water proof lighting

All stations including the filler chamber complete with waterproof interior lights to ensure a proper visibility of the operation of the complete plant and enhance the overall visibility for maintenance / inspection.

Price USD \$2,500.00

4. Stainless steel internal washer pipework

complete stainless steel pipework throughout the washer wash section. Stainless steel sanitary piping and sanitary clamps in washer section. No threaded fittings and piping are used to avoid bacteria contamination.

Price USD \$2,435.00

5. Sanitize liquid injection system

to continuous inject a sanitizer in the make up water to the sanitize station.

Price USD \$650.00

6. 3 gallon (11 liter) kit

multiple bottle option (semi-automatic changeover) for 3 gallon bottles (5 gal. Diameter)

Price USD \$758.00

7. Single point lubrication

this feature will facilitate the lubrication of all the bearings in the wwai series.

Price USD \$1,429.00

8. Single point drain

Single point drain connection for easy installation.

Price USD \$850.00

9. Heat transfer coil plate system

These plates are available for steam or hot water application. Please contact the factory for pricing
call factory

10. Spare parts

Recommended standard spare parts and consumable kit for wwai series

Price *USD \$2,690.00

Additional Accessories for a 5-Gallon Line

2. Automatic super sanitation system

to recirculate high concentration of ozonated water into the sanitize station of the washer. Fully automatic recirculation ozone system to sanitize rinse station. Mazzei venturi and stone for the injection of ozone. This ozone will generate 0.4 to 0.8 ppm / mg/l @ 25 deg. C. And <50 ppm of concentrated ozone. Ozone will be supplied from the main ozone equipment.
Price USD \$2,485.00

3. Gravity bottle conveyor

Price USD \$180.00 / ft.

4. Motorized conveyor for bottles

stainless steel power conveyor with 4.5" stainless steel top chain supported on uhmw material. Adjustable support feet. Ac variable frequency drive speed controller, and gear reducer for more accurate speed control. This conveyor will include a pan located under the entire motorized conveyors. Stainless steel conveyor structure stainless steel chain conveyor side-mounted screw-on motor reducers hand-operated control box for each motor note: collector pan located under all motorized conveyor is \$15.00 per ft.
Price USD \$335.00 / ft

5. Central lubrication center for motorized conveyor complete package for the lubrication of the motorized conveyors

Price USD \$2,812.00

6. Inspection light

These inspection lights will be mounted inline on to the motorized conveyor to allow an operator to have proper visual inspection of the un-treated bottle, and of the finished product.
Price USD \$2,121.00

7. Automatic Cap Elevator

This cap elevator is complete automatic, and will interact with our capping system of the waterworks series bottling equipment. This bin will have the capability to hold over 3,000 5 gallon caps. The construction of this equipment is in stainless steel, and a mitsubishi programmable logic control sequence will be used to coordinate efficiently all the different sequence.
Price USD \$7,890.00

8. Fully Automatic Leak Detector

To detect a poly carbonate bottle for leaks. The fully automatic leak detector will work on-line with any motorized conveyor. This equipment is constructed in stainless steel, works with positive air pressure, and detects gross defective leaks > 1 mm. The equipment includes a plc to

control the sequence of all the operations, And if a bottle is detected with a leak the equipment will automatically reject the defective bottle.

Price USD \$24,090.00

9. Accumulation Bin Table

To accumulate all the bottles rejected by the thermedics or leak detector or automatic decapper equipment. The dip cube table will accumulate all of the defected bottles that are rejected by the thermedics or a leak detector.

These bottles will be pushed from the motorized conveyor into this accumulation cube table. The operator will empty the bin every time it will fill with rejected bottles. The construction of the complete system is in stainless steel.

Price USD \$2,600.00

10. Fully Automatic Decapper System

Stainless steel decapper is a single head able to remove safe guard standard closure, one at a time. Decapper fits over all standard motorized conveyors, the unit is designed with one proximity detector, which will detect if there is a cap to be removed. The second proximity detector will allow the head jaw to activate and remove the cap from the bottle. The third proximity detector, located after the head jaw mechanism will trigger an alarm in the event the cap was not completely removed and will activate the built-in bottle ejector. This feature will allow having continuous operation of the plant with out interruptions in the line. Operation speed can be geared to run at speed consistent with your production line up to 2,400 bph. This equipment can be used for different size bottles.

Price USD \$14,590.00

11. Ink Print Coding System

Whatever your production cycle demands the in jet coder will print dependably, ensuring maximum productivity with minimal operator intervention. Whether running continuously or shutting down daily, the system print head technology delivers precise print every time. Intelligent system design allows the product to perform in a wide range of environment, minimizing the effects of temperature and humidity. The system can be installed with only an electrical connection required, eliminating the need for a factory air supply. Unique ink system design using large internal reservoir and a nozzle seal allows the a-series to have truly automatic print head cleaning giving unrivalled start up and shut down time after time. One button control s the complete start up and shut down process, eliminating potential operator errors and possible delays associated with manual print head cleaning. The ink system can print up to 2 line with a variety of print formats which include logos, automatic serial number / batch coding and real time clock fiber optic product detector non-contact sensor uses infrared light and fiber optics to detect both metallic and non-metallic products.

Print head stand assembly includes low profile floor stand, vertical print head mount assembly, product detect bracket, adjustment keys and mounting bolts. Power var line conditioner provides voltage regulation, surge and transient suppression 2amp start up kit this kit comprises of: (1) ink reservoir, (1) ink cartridge, (4) make up solution, (4) wash solution. Printer care kit special labor saving tools in a protective case. Includes: safety glasses, wash bottle, beaker, ultrasonic cleaner, and all tools necessary for set up, cleaning and servicing.

Price USD \$13,593.00

12. Shrink Band and Sleeve Applicator

ez-a1 automatic heat shrinkable tamper evident band applicator to process at rates of up to 30 bottles per minute. Machine to operate with an existing conveyor. The equipment includes the omron programmable controller, simple operator interface with digital band length adjustment, synchronous motor film feed system, product positioning sensor, and set of change part tooling for 102mm lay flat bands.

Price USD \$17,806.00

13. Seal Heat Shrink Tunnels

seal heat shrink tunnels are custom made for optimum shrink performance with minimal space. The shrink tunnel utilizes state of the art temperature controls capable of having multi zone, and high, and low blower controls. Resistive heater elements with 2.8 kw output, stainless steel enclosure, and adjustable mounting brackets. Independent temperature, and airflow controls allow for a slow cool down to extend the life of the heating elements.

Price USD \$3,245.00

TOTAL PROJECT PRICEUSD USD \$251,448.00

14. Commissioning & Training Services

the price charged is for commissioning, and training for the desalination plant. The client is responsible to cover all the charges of the round trip airfare, hotel accommodations, daily meals, and transportation and any related expenses to the project. The following are the rates: traveling time \$275.00 per diem per person, and labor \$650.00 per diem per person (8 to 10 hour labor).

Terms and conditions

- 1) Currency: all prices are in US Dollars.
- 2) Local installation: buyer is responsible for equipment installation hook-ups for all water connections, clean dry oil free compressed air connection, and electrical power connection, responsible for foundations, plumbing, electrical, air tubing outside the bottling equipment. Seller will supply all necessary drawings, layouts, and manuals for the proper site

preparation of the equipment to be installed before shipment of the goods. The manual will also cover trouble shooting, electrical, plc logic, pneumatics, etc.

3) local assembly & commissioning: final connections, inspection, commissioning, start-up, and operator training services with first production are available from universal aqua technologies, inc. Or one of it's authorized service centers. Work days will be charged at current daily rates. Buyer is responsible for the round trip airfare, local hotel accommodations, local meals, and local transportation. Training will cover plc aspects, settings, fault diagnostics, running of equipment, etc.

4) Ship via: freight collect

5) Insurance: to be paid by buyer

6) Port or city of discharge: to be advised by buyer

7) Port of loading: any USA port

8) Transshipments: allowed only when necessary due to special routing.

9) Ship date: 10-12 weeks from receipt of deposit or approved l/c by seller. Any delays in receiving the bottle and cap samples, or payments or original l/c by buyer will result in production delays.

10) Payment terms: 35% deposit upon order placement, 35% half way through production, balance before shipment or confirmed irrevocable l/c payable at sight. All banking charges for account of buyer.

11) Packing: all goods will be packed properly for ocean or truck transportation. Strong wood type cases/pallets will be used where applicable provided the cases can fit in a standard container to avoid possible loose case shipment.

12) Marking: equipment will be properly marked & tagged.

13) Country of origin & manufacturer: torrance, california, United States of North America.

14) Advise of shipment: the seller or seller's freight forwarder shall notify the buyer by fax.

15) Shipping documents: one full set of "clean on board" bills of lading. Four copies of invoices indicating invoice number. Three copies of packing list issued by the seller four copies of certificate of manufactured origin of commodity issued the manufacturer.

16) Warranty: Manufacturer guarantees that the commodity is made of the best materials and workmanship. The uat automatic bottling equipment will carry a limited 24 months warranty. The warranty will cover all parts manufactured by uat. All other parts will carry the original manufacturers warranty, from original shipping date. Labor, and freight is not included.

17) Inspection: the seller shall, before making shipment from the usa, make a precise and comprehensive inspection of the goods in regards to the quality, specification, performance, and quantity, and issue a certificate certifying that the goods are in conformity with the proforma invoice in question. Buyer is welcome to be present at this time.

18) Restocking charge: 35% restocking charge will apply on all cancelled production orders will apply.

19) Certification: equipment will carry CE logo and also nsf certification logo.

Price quoted does not include options, installation, in-bound & out-bound freight.

All prices and delivery times are fob manufacturing facility.

Payment terms:

50% down, 50% before shipping. Wire transfer
delivery of the small bottle line: 8-10 weeks.

Validity:

60 days. Specifications and pricing subject to change.
Compressed air source required

Information Provided by International Water Life Company.

REID PLASTICS
Sacramento, CA
916-381-4885

A year ago, they were offering 5-gallon bottle pricing:

4.40 without handle

5.40 with handle

40' container holds approximately 2,210 bottles w/handles, 2,150 with handles.

As for labeling, you have numerous options.

1. For approximately .18 cents a piece, you can have your label silk screened onto the bottle.
2. You can provide your labels directly to the bottle manufacturer and let them apply them.
3. Or you can place the labels on by hand, since your volumes are very reasonable for that sort of handling.