

## Appendix – Water Tanks

### A. Product Description

Water tanks are a great enhancement to the agricultural product line that many farmers and ranchers purchase when considering other precast products. Water tanks come in numerous sizes and configurations and local preference drives the market and may be hesitant to accept new configurations.

Water tanks are also available in a variety of sizes and shapes but the most common volumes are 200 gallons and 300 gallons. These tanks can be set below grade to help reduce freezing or can be set as a stock tank above ground. These tanks come equipped with inlet piping connections to allow them to be tied directly to wind driven pumps or other water sources and outlet piping connections so that the draining water can be taken away from the tank area, keeping it from becoming a muddy mess.



A special tank with a limited market is the freeze proof 100 or 200 gallon tank. Obviously this product would not be applicable for warmer climates where there is little concern of water freezing or in colder climates where hard freezes are common. This tank, when properly installed in a pond dam, provides livestock with drinking water throughout the winter, without the farmer or rancher having to go to the pond and break the ice with an axe, in climates that experiencing more moderate winter temperatures. A simple level control and circulating valve keeps the water moving and free of ice when the tank is partially buried in the pond dam. This product can also be connected to the rural water supply if desired. In addition, in many rural counties programs exist to help out farmers with the cost of

qualified freeze proof water tanks. (Customers can check with the county extension office to see if they are eligible.)

### **Customer Identification:**

Typical customers for water tanks include farmers, ranchers, feed lot operators and other agricultural operations. Getting your message out to these customers can be more challenging than other more centralized industries but many of the same tools can be utilized.

The key to marketing agricultural products is maintaining a high level of visibility in the agricultural community. You are marketing to local small businessmen and need to get your product in front of them at every opportunity. Since you have a limited delivery area for precast products, the marketing efforts need to be focused on local tools.

Advertising in targeted farm and cattle related publications published for your market is critical. The American Farm Bureau has local offices with publications throughout most markets and may be a good resource. Agricultural and Farming Publications like the *High Plains Journal*, *Farm Journal* and *American Small Farm Magazine* are listed on [www.moocow.com](http://www.moocow.com) along with many other regional publications. Local publications can also be identified through conversations with farmers and ranchers in your area or simply a visit to a farm supply or feed store in your market.

This same type of information can be obtained by participating in area “Farm Shows”. There are a number of local farm shows throughout the country. There are a number of resources that list shows in your region. Two websites that list a large number of shows are:

[www.farmequip.org/farm\\_shows](http://www.farmequip.org/farm_shows)  
[www.farmshows.com](http://www.farmshows.com)

There are many associations representing different segments of the farm and ranch community which can be a source of information about local issues and activities that may be beneficial. Some of the associations are:

Your State - Farmers and Ranchers Associations  
Breeders Associations - [www.naab-css.org/guidelines/beefbrd.html](http://www.naab-css.org/guidelines/beefbrd.html)  
Cattlemen’s Associations – [www.beefusa.org](http://www.beefusa.org)  
Rancher Associations – [www.Ranchers.net](http://www.Ranchers.net)  
State Livestock Association – [www.nlpa.org](http://www.nlpa.org)

Your State Department of Agriculture will also have resources to help develop leads concerning the farmer and rancher community. Most sites include an agriculture and rural resource directory, links to outside resource, a list of industry associations and fairs and festival calendars. In addition, if your state has an agricultural college with extension services for farmers and ranchers they can be very beneficial resources and possess a great deal of local knowledge in their extension offices around the state.

## B. Manufacturing Requirements

The following bill of materials tables utilizes 5000 psi concrete at a cost of \$100/yd<sup>3</sup>. The Direct Labor, cost of manufacturing manpower, is estimated at a \$20/hr wage including an increase to account for benefits.

### Bill of Materials:

#### 100 Gallon Freeze Proof Tank / Baffle / Lid

Description	Units	Quantity	Unit Cost	Extended Costs
			(\$)	(\$)
Concrete (5000 psi)	Ft <sup>3</sup>	23	3.70	85.10
Rod / Rebar ½" Dia.	Lbs.	11.36	0.40	4.54
Rod / Rebar 3/8" Dia.	Lbs.	25.1	0.40	10.04
Wire Reinforce 6x6 – 10 Gauge	Lbs	1.6	0.41	0.66
Form Oil	Gal.	1.2	7.00	8.40
Misc Pipe, Valves & Fittings				58.45
Direct Labor	MHrs	2.4	20.00	48.00
Total Unit Cost				\$215.19

#### 200 Gallon Freeze Proof Tank / Baffle / Lid

Description	Units	Quantity	Unit Cost	Extended Costs
			(\$)	(\$)
Concrete (5000 psi)	Ft <sup>3</sup>	28	3.70	103.60
Rod / Rebar ½" Dia.	Lbs.	38.8	0.40	15.52
Rod / Rebar 3/8" Dia.	Lbs.	27.66	0.40	11.06
Form Oil	Gal.	1.2	7.00	8.40
Misc Pipe, Valves & Fittings				68.15
Direct Labor	MHrs	2.45	20.00	49.00
Total Unit Cost				\$255.73

### 200 Gallon Spring Tank

Description	Units	Quantity	Unit Cost	Extended Costs
			(\$)	(\$)
Concrete (5000 psi)	Ft <sup>3</sup>	18	3.70	66.60
Rod / Rebar 1/2 inch Dia.	Lbs.	38.8	0.40	15.52
Form Oil	Gal.	0.4	7.00	2.80
½ Plastic Thd Insert	Each	4	0.30	1.20
2 inch Galv. Cpl.	Each	4	6.39	25.56
22 inch long 2" Galv Pipe	Each	4	3.75	15.00
Direct Labor	MHrs	1	20.00	20.00
Total Unit Cost				\$146.68

### 300 Gallon Spring Tank

Description	Units	Quantity	Unit Cost	Extended Costs
			(\$)	(\$)
Concrete (5000 psi)	Ft <sup>3</sup>	27	3.70	99.90
Rod / Rebar 1/2 inch Dia.	Lbs.	42.97	0.40	17.19
Form Oil	Gal.	0.4	7.00	2.80
½ Plastic Thd Insert	Each	4	0.30	1.20
2 inch Galv. Cpl.	Each	4	6.39	25.56
22 inch long 2" Galv Pipe	Each	4	3.75	15.00
Direct Labor	MHrs	1	20.00	20.00
Total Unit Cost				\$181.65

**Plant Requirements:**

The plant requirements for the addition of a new product line, like spring and freeze proof tanks, is a moderate amount of surplus mixer capacity, forms, adequate production floor space and adequate finished product storage area.

The mixer capacity required to support the production will depend on the number of tanks you choose to add to your product line. While the opportunity to sell these products is year round our experience is that generally the strongest sales occur in the fall after part of the herd has been sold off. We have assumed that you will be pouring a minimal number of water tanks throughout the year which makes your mixer capacity requirement approximately 1.0 yd<sup>3</sup> on days you will be pouring.

Forms for water tanks are available from a number of sources and several are noted in a later section.

The floor space required to pour water tanks is minimal and may be a good fit for many of the Wilbert plants that have very limited production floor space. An area roughly 5 ft. x 10 ft. is adequate for any of the tanks. An overhead crane is used to strip the tanks from the form and to remove from the production floor. The tanks can weigh from 2500 to 3500 pounds each so a 2 ton overhead crane is more than adequate to handle the product in the plant.

The delivery of the water tanks is something you will also need to evaluate. For market entry, tanks can be delivered on a typical vault truck but it is suggested that other means be evaluated to increase the efficiency and to ensure adequate equipment is available for the various conditions that may be encountered at the customer locations.

### **Manufacturing Process:**

The manufacturing process for water tanks is more involved than the other products included in this business plan but still remains relatively straight forward precast production. The form for the tank is thoroughly cleaned and form release is applied to all surfaces that will come in contact with concrete. Rebar is placed and tied, in accordance with the tank structural design. The sides of the tank form are then tilted into position; turning inserts are positioned in the tank end sections and secured. The tank is poured upside down. The concrete is then placed in the form and consolidated by internal and/or external vibration, to ensure it has properly molded to the form. The form may need to be topped off after consolidation to ensure that the form is completely filled. Strike off the form to ensure that it is not overfilled. After the concrete has cured the tank wall forms are then released and bolts are inserted into the ends of the tank for lifting and turning. The tank is lifted from its form by an overhead crane and placed on the production floor. The tank is then taken to yard storage by an appropriately rated forklift.

**Employee Requirements:**

There is no special employee training or knowledge associated with the production of this product.

**Regulatory Requirements:**

There are no national standards established for this product nor are there any known national regulatory requirements. There are regional authorities, including states, counties, municipalities and cities, which have established specifications to ensure consistency of the product they receive.

**Sourcing of Consumables:**

The consumables for this product are consistent with your current vault production and will not require new or unique raw material inventory to be established. The consumables for this product include form oil, and reinforcing steel.

**Sourcing of Forms:**

Steel forms for water tanks are available from a number of sources. New forms can be obtained from:

**Steel Forms:**

Del Zotto Pre-cast Concrete Products & Forming Systems

Website: [www.delzottoproducts.com](http://www.delzottoproducts.com)

Phone: 218-384-3066 (MN), 866-358-3834 (FL), 903-981-0400 (TX)

By email: [formsales@delzottoproducts.com](mailto:formsales@delzottoproducts.com)

Norwalk Precast Molds, Norwalk Ohio

Website: [www.norwalkprecastmolds.com](http://www.norwalkprecastmolds.com)

Phone: 419-668-1639 or 1-800-251-8409

By email: [sales@norwalkprecastmolds.com](mailto:sales@norwalkprecastmolds.com)

Molds of Bethlehem, Inc., Hickory, North Carolina

Website: [www.moldsofbethlehem.com](http://www.moldsofbethlehem.com)

Phone: 828-495-7731 or 1-800-659-7815

By email: thru link on website

Wieser Concrete, Maiden Rock, WI 54750

Website: [www.wieserconcrete.com](http://www.wieserconcrete.com)

Phone: 715-647-2311 or 1-800-325-8456

By email: [wieser\\_eng@dishup.us](mailto:wieser_eng@dishup.us)

## C. Total Capital Investment

### Capital Costs

Description - Forms	Units	Quantity	Unit Cost (\$)	Extended Costs (\$)
100 Gal. Spring Tank	Each	1	5000.00	5,000.00
200 Gal. Spring Tank	Each	1	5200.00	5,200.00
300 Gal Spring Tank	Each	1	5200.00	5,200.00
<b>Total Cost</b>				<b>\$15,400.00</b>

### Advertising Cost

Description	Units	Quantity	Unit Cost	Extended Costs
			(\$)	(\$)
Postcard Mailers	Each	100	0.35	\$35.00
Product Flyers	Each	100	0.04	\$4.00
Milled Alum.	Each	1	400.00	\$400.00
Brand Mold				
Reinforced Rubber	Each	4	1.00	\$4.00
Brand Plate				
Yellow Page Advertisement	Each	12	100.00	\$1,200.00
Journal Advertisement	Each	12	100.00	\$1,200.00
Website Update	Each	1	80.00	\$80.00
<b>Total Cost</b>				<b>\$2,923.00</b>

### Inventory Cost

To enter the water tank market one has to establish an inventory and form investment strategy. A 20 piece inventory of various size tanks is advisable. The 100 and 200 gallon spring tanks are the same form as the freeze proof tanks so you can inventory tanks without all of the plumbing fixtures. The 200 gallon tanks can serve a larger number of cattle and have proven to be a better seller. Maintaining a larger number of 200 gallon tanks is a reasonable strategy and we would recommend an inventory of 10 tanks. The 100 and 300 gallon tank sales can be managed with a 5 piece inventory of each. Utilizing the unit cost based on an earlier section your inventory cost for spring tanks is approximately \$ 4,541.



## **Breakeven Analysis**

The following sample breakeven analysis allows you to look at the point at which you will be breaking even on this new product line. In order to perform this simple analysis we hold the profit at zero dollars (breakeven) and solve for the number of water tanks sold.

Assigned Values:

$$\text{Average Selling Price} = \$ 450.00$$

$$\text{Average Cost to manufacture one water tank} = \$ 227.07$$

$$\text{Profit} = 0$$

Calculated Values:

$$\text{Revenue} = \text{Selling Price} \times \text{Water Tanks Sold}$$

$$\text{Revenue} = \$ 450.00 \times \text{Water Tanks Sold}$$

$$\text{Fixed Cost} = \text{Capital Cost} + \text{Advertising Cost} + \text{Inventory Cost}$$

$$\text{Fixed Cost} = \$ 15,400 + \$ 2,923 + \$ 4,541$$

$$\text{Fixed Cost} = \$ 22,864$$

$$\text{Variable Cost} = \text{Cost to manufacturer one water tank} \times \text{Water Tanks Sold}$$

$$\text{Variable Cost} = \$227.07 \times \text{Water Tanks Sold}$$

$$\text{Profit} = \text{Revenue} - \text{Fixed Cost} - \text{Variable Cost}$$

$$0 = (\$ 450.00 \times \text{Water Tanks Sold}) - \$ 22,864 - (\$227.07 \times \text{Water Tanks Sold})$$

$$\$ 22,864 = (\$450.00 - 227.07) \times \text{Water Tanks Sold}$$

$$\$ 22,864 / \$222.93 = \text{Water Tanks Sold}$$

$$102.6 = \text{Water Tanks Sold}$$

This means you will have to manufacture and sell 103 Water Tanks to break even on this new product. Since this plan is for manufacturing 1 Water Tank each day, it will take you 103 working days to make the water tanks needed to breakeven.