

## **C.R. BARGER & SONS, INC. (B)**

It had been almost four years since Eric Barger became president of the Precast Concrete Operations (PCO) division of C.R. Barger & Sons, Inc., (Barger). At the time he took over the position, the company was considering shutting down this division because of its persistently stagnant, flat revenues. But Eric had decided to give the PCO division his best shot.

By the end of 2007, Eric had turned the PCO division around and had grown it into a leader in the precast-concrete industry by implementing a multifaceted strategy. Eric accomplished this by differentiating the product and incorporating technology into the manufacturing process for higher quality and efficiency. He also expanded Barger's customer base geographically and added new customer segments after launching an aggressive Internet branding program and educational effort.

As a result, Eric's former challenges had changed dramatically—from how to save the PCO division to figuring out how to duplicate and improve on the results of his growth initiatives. In particular, Eric now was considering whether to build a new PCO plant at a cost of \$3.8 million in order to accommodate future growth.

### **2004 Growth Strategy**

When Eric took over the PCO division in 2004, Barger could not differentiate its precast-concrete tanks from those of other manufacturers in the area, in spite of having been in the business since 1967. Basically, Barger sold a commodity product primarily to utility districts and had little market or brand recognition.

Eric's revitalization strategy had included seven goals: (1) create product differentiators; (2) increase manufacturing efficiency; (3) create brand awareness; (4) create new customers by expanding geographically; (5) create new customer segments; (6) be a first-mover incorporating new national standards; and (7) make service a differentiator.

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This case was prepared by C.R. Barger & Sons, Inc., and Shizuka Modica, Research Assistant, under the supervision of Edward D. Hess, Professor and Batten Executive-in-Residence, Darden School of Business, University of Virginia. It was written as a basis for class discussion rather than to illustrate effective or ineffective handling of an administrative situation. Copyright © 2008 by the University of Virginia Darden School Foundation, Charlottesville, VA. All rights reserved. *To order copies, send an e-mail to [sales@ardenbusinesspublishing.com](mailto:sales@ardenbusinesspublishing.com). No part of this publication may be reproduced, stored in a retrieval system, used in a spreadsheet, or transmitted in any form or by any means—electronic, mechanical, photocopying, recording, or otherwise—without the permission of the Darden School Foundation.*

In September 2004, the company got its grease interceptors H20-highway-traffic-rated to accommodate the Knoxville Utility Board's request. The H20-highway-traffic rating standards were applied in high-traffic areas as defined by the American Association of State Highway and Transportation Officials. Owing to rigorous standards, the new line of H20-rated products had price tags much higher than those of existing product lines. For instance, a 1,000-gallon non-traffic-rated grease interceptor cost about \$400, but if it were H20-traffic-rated, it cost \$2,500.

Barger became the only East Tennessee precast-concrete tank manufacturer offering watertight, traffic-rated grease interceptors, grit traps, and septic tanks. The company manufactured watertight 40- to 6,800-gallon tanks, including ones traffic-rated for H20 loadings and deep-burial applications.

The use of watertight, traffic-rated grease interceptors maximized tank performance and useful life, thereby enabling utility districts to effectively combat the problem of grease clogging municipal wastewater systems. Another critical design feature that further differentiated Barger products was its use of monolithic baffle walls that enhanced structural integrity, thereby eliminating premature failures.

## **Manufacturing Efficiency**

Eric introduced the most rigorous industry standards into the company's manufacturing processes, which also enhanced product quality and further differentiated its products. In October 2005, the company was certified by the industry's leading trade association, the National Precast Concrete Association (NPCA) and became the only NPCA-certified plant in East Tennessee specializing in tank manufacturing.

The NPCA Plant Certification Program was a challenging test of a plant's ability to produce quality precast-concrete products. The program was administered by a world-renowned engineering and materials-science firm. Assigned inspectors comprehensively assessed all aspects of precast-concrete production at a plant. To be certified, plants had to meet high standards in all areas of production, safety, delivery of products, and information management.

Achieving this certification meant that Eric had to make the company's manufacturing process more disciplined; he maintained comprehensive manufacturing records and obtained required ACI certification for those employees performing the concrete testing.<sup>1</sup> According to Ty Gable, president of NPCA, Barger had proven its commitment to manufacturing the highest quality of precast products by joining this elite group of precasters.

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<sup>1</sup> ACI stood for American Concrete Institute. Founded in 1904, ACI managed 14 certification programs to develop, share, and disseminate the knowledge and information needed to utilize concrete to its fullest potential.

As part of the NPCA certification process, Eric introduced innovative technology solutions in many ways and extended the company's computer network to include the manufacturing plant. The production side of technology solutions included the use of more precise concrete forms and the application of technically superior concrete, adhesives, and ASTM-compliant, chemical-resistant sealants.<sup>2</sup>

Concurrently, Eric developed and implemented two software systems that streamlined operations management. The first system, called PreCast-IT!, was an inventory-management software system designed specifically for manufacturing, delivering, and maintaining records for precast-concrete products. PreCast-IT! used barcodes and portable data terminals to maintain a complete history of each product manufactured and delivered to a customer, eliminating the time-consuming and error-prone manual data-entry method.

A second software system, Produce-IT!, provided detailed requirements for the materials for any selected time period based on the schedules, product structure, and bill-of-materials maintained in the system. Produce-IT! allowed manufacturing planners to easily schedule product pours and automatically generated a complete list of production-material requirements. The system allowed the user a five-day window into production schedules. The schedule for a specific concrete form could easily be shifted forward or backward in time to accommodate unforeseen demand or outages. Because Produce-IT! maintained complete product structure and bill-of-material records, it could generate a summary report on material requirements across any desired time period and facilitate efficient ordering of production materials.

### **Customer-Service Enhancement**

Eric communicated Barger's commitment to providing excellent service both to his employees and to all customers. He wanted all employees to embrace the notion that excellence in service was not just an idea, but a way of life at Barger. He wanted all employees who came into contact with customers to be effective representatives of the quality of the company's product and guaranteed maintenance service. So, as part of customer-service enhancement, Eric demanded well-trained personnel for everything the company did and encouraged all employees to be certified in their relevant domains.

Eric also led by example. For instance, he was dedicated to answering questions from customers and judiciously followed up on these inquiries by contacting them and/or sending AutoCad tank drawings and other relevant product information (**Exhibit 1**) on the same day he received their inquiries.

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<sup>2</sup> ASTM stood for the American Society for Testing and Materials. This association set international standards for a wide range of materials, products, systems, and services.

On-time deliveries, which were rare in the industry, became the company's signature service, saving contractors the cost of having crews on standby for several hours waiting for a delivery. Not satisfied with this significant improvement, Eric pushed on-site delivery service to a different level, as proclaimed on the Barger Web site:

Delivery drivers are first-class people, willing to go the extra step it takes to ensure you are happy with your order. That includes handling the tank in a fashion that is safe and courteous, being on time for deliveries, and maintaining a good relationship with each customer. The drivers are just an extension of the business and the biggest representative that contacts the customer. Being able to make decisions on the job site, scheduling future deliveries and making sure that the customer has not ordered too much or forgotten a small item they may need.<sup>3</sup>

Additionally, both Barger's and Eric's personal expertise in utility operations helped enhance customer service in a way that other precast-concrete manufacturers could not. For example, Eric and several other employees held Water Treatment Plant and Licensed Distributionist certifications and could assemble water-meter vaults. To simplify the on-site tank-installation process, Barger started selling preassembled vaults to utility districts that were ready to be set in the holes and hooked up to the tanks.

## **Branding**

Eric wanted to establish Barger as *the* underground-tank authority and to promote it as representing values that brought "old-school thought and 21st century marketing together."<sup>4</sup> Barger's marketing strategy encompassed various forms of awareness campaigns and education on product-design features unique to its products. This strategy was targeted toward all potential customers (i.e., individual homeowners, building contractors, engineers, architects, utility districts, and state and municipal regulators) who influenced the market.

### **Awareness campaign**

To raise awareness among prospective customers, Barger adopted the theme, We're Number One in the Number Two Business, which was carried throughout all PCO advertising. Because he did not have an expert marketing team on board at the time, Eric himself developed brochures, T-shirts, hats, and even pocket knives sporting the company logo. He filled a billboard with a display of the major Barger products and corporate theme and then had it placed strategically on Interstate 40.

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<sup>3</sup> <http://www.bargerandsons.com/company/info.html> (accessed 2 July 2008).

<sup>4</sup> Greg Snapper, "Lessons from the 'Little Guy,'" *MC Magazine* (June/July 2006): 42.

The company advertised on the two Knoxville talk radio stations at a cost of \$50,000 per year per station. Radio advertising by commercial voice-overs by well-known personalities helped inform Barger's target market about important product features and company attributes. It also included hosted a four-hour radio show that ran five days a week on one of the stations whose radio waves reached five different states. This radio show's host unexpectedly became an advocate for Barger.

Some of Barger's employees, including Eric and his father Mickey, belonged to relevant industry associations and actively participated in trade associations and industry-standards groups. Eric served and networked with others in the industry as a member of the NPCA Quality Assurance Committee, as the director of the NPCA Educational Foundation, and as a member of ASTM committee, C27, Precast Concrete Products. While widely networking in the industry, Eric simultaneously pursued various opportunities for the company to be featured in articles in industry publications.

Community outreach was also expanded to sponsor direct delivery of industry trade-magazine subscriptions free-of-charge to decision makers, engineers, and utility owners. Barger also sponsored free technical classes where engineers and architects earned continuing education credits.

### **Internet marketing**

To promote education among prospective customers, a new Web site was designed without an emphasis on sales. The new site accommodated prospective customers' varying needs and interests. Anyone who visited the Web site was given unlimited access to detailed plans, design specifications and drawings, white papers, and published articles to use when designing and developing project specifications.

For nontechnical homeowners, the Web site also offered a list of frequently asked questions and provided information on how to best use and maintain a septic tank. This was different from the traditional way septic systems had been sold in the past when homeowners were seldom involved until the bill was presented to them. Eric's hope was that educating homeowners about residential septic systems would enable them to play a significant role in their purchase, a decision usually made by their contractors.

In designing the new Web site, Eric carefully chose metatags (keywords) embedded in each of the company's Web pages, so even with a quick search using a Web browser, Barger popped up on a computer screen for anyone looking for watertight concrete septic tanks, grease interceptors, and storm shelters.

## The Results

Shortly after launching the new marketing strategy, Eric started getting phone and Web site orders from Georgia, Virginia, and Kentucky. When the company received sales inquiries from a new state, it quickly familiarized itself with that state's regulations governing its business to become compliant with relevant regulations. At the end of 2007, Barger had expanded its customer base from its home state, of Tennessee to 12 more states, including Arkansas, North Carolina, South Carolina, Illinois, Mississippi, West Virginia, Ohio, and New York.

Thanks to its open-source Web site and customer-centered philosophy, Barger's quality products generated some unusual requests. For example, Eric received a call from a wildlife conservationist in San Juan, Puerto Rico, asking about a 5,000-gallon grease interceptor. This government official, who was responsible for the preservation of one of the most endangered birds in the world, had found Barger on the Internet. Situated in a remote location of the Caribbean National Forest, Luquillo Aviary was a captive breeding sanctuary for the Puerto Rican parrot. The sanctuary needed a cistern as part of the government's 19-year-old formal recovery plan for the parrot. The sanctuary bought Barger's grease interceptor as a rainwater storage tank to provide chemical-free drinking and bathing water for the birds. To ensure proper installation on-site, Eric filmed and narrated an instructional DVD that was shipped with the interceptor.

Now because of the order from Puerto Rico, Barger was advertised as a "parrot's best friend" in NPCA's industry magazine, *Precast Solutions Magazine*, in the spring 2006.<sup>5</sup> Other media exposure included a feature article about the company, one about the lessons learned from the company's Web experience, and a technical feature presenting the results of a study on inflow and infiltration from unsealed septic-tank access ports. Eric's Web-savvy marketing also led to negotiations with American contractors in the Middle East.

By providing various technical white papers and personalized services to his customers, Eric built buy-in for high-priced, H20-highway-traffic-rated product lines. In 2006, Barger sold 60% more H20-rated products than products without the rating to both its commercial and industrial customers. H20-rated products buffered liability concerns customers had and helped them promote safe, ecologically friendly tanks.

Almost daily, new customers called or e-mailed. But attracting new customers was secondary to keeping existing business relationships thriving. At the end of 2007, Barger's customer base was 40% homebuilders (a 10% increase from the previous four years) and 60% commercial/industrial customers. This 60% broke down further to 40% utility districts and 20% grease interceptors.

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<sup>5</sup> Bridget McCrea, "Parrot's Best Friend," *Precast Solutions Magazine*, Spring 2006.

The two software systems Barger developed to improve its production and management processes turned out to be great investments. Produce-IT! reduced the time required to develop pour schedules by 90%. In addition to saving several hours of effort per week developing pour schedules, Produce-IT! reduced the company's material supply stock by 50%.

Barger received the NPCA's Award of Excellence in 2007; it was one of only three plants in the United States to receive it. The award was based on scores from an independent, unannounced audit of the manufacturing plant, its processes, procedures, and employee qualifications. In 2007, Barger also received the Pinnacle Award, presented after a competition for the leading innovations, inventions, and ideas throughout the precast-cement industry. The award specifically recognized the PreCast-IT! inventory-management software as the most innovative industry development for 2007.

By charting and implementing a pathway to excellence, Barger's PCO reached a position of market dominance and preeminence in its field in four years. Gross sales for the 2007 fiscal business year exceeded 2003 sales by 400% and topped the goal established in 2004—these results reflected an average annual sales growth of 42% over the four-year period. The sales per full-time-equivalent (FTE) employee in 2007 were \$202,000, reflecting an increase of 50% over 2003 figures. The number of FTE employees in the division alone grew from 4.5 in 2004 to 15 at the end of 2007.

When compared with the modest growth in construction in the area, Barger's 400% increase in sales suggested that some amount of business was taken away from competitors. According to the U.S. Census Bureau, new residential construction in 2007 decreased by almost 25% nationwide compared with new residential construction in 2006.<sup>6</sup> In early 2008, economists debated whether the United States was heading into a recession, and no one was quite sure about the magnitude of the impact of the subprime-mortgage crisis on the U.S. economy.

### **Growth Capacity: Build A New Plant?**

Barger's success led it to wonder whether or not it should construct a new plant in an industrial park closer to the center of its market area. The new plant would increase Barger's production capacity, giving it the capability to expand its product lines. For about \$3.8 million, the company could build a plant that would increase its concrete-production capacity by a factor of five from 40 to 200 cubic yards per day.

Barger had three primary reasons for wanting to build a new plant. First, by March 2006, the existing plant occasionally ran over capacity; in 2007, it ran over capacity more than 50% of the time and sometimes at 150% over capacity. But the bottom line was that the plant ran at over 100% capacity more than half the time. Second, Barger had no space for expansion on its

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<sup>6</sup> U.S. Census Bureau, New Privately Owned Housing Units Started: Annual Data, <http://www.census.gov/constr/www/newresconstindex.html> (accessed 21 July 2008).

existing one-acre property. Third, Eric wanted to improve the quality of the concrete the company used. Because the existing plant did not have the capacity to mix concrete, the company relied on purchased, premixed concrete. The new plant would give the company total quality control over the concrete.

Was it reasonable for Eric to expect that Barger could sustain the same growth rate in the future? Should Eric be satisfied with the company's 2007 revenue levels and focus on maintaining its product lines, market areas, and customer base? Or should Eric build the new plant and seek more growth?



Exhibit 1

**C.R. BARGER & SONS, INC. (B)**

**Why a Barger & Sons Septic Tank Is the Best Value for the Homeowner**

<b>Tank Feature</b>	<b>Barger's Approach</b>	<b>Other Manufacturers' Approach</b>	<b>Benefits to Homeowner</b>
<b>Zero Inflow and Infiltration</b>			
Watertight tank	<ul style="list-style-type: none"> <li>• Use ASTM C990 sealant and proven application methods</li> <li>• Joint design enhances seal</li> </ul>	<ul style="list-style-type: none"> <li>• Cheap sealant does not meet ASTM specifications and fails</li> <li>• Joint design and sealant size inadequate to assure water tightness</li> </ul>	<ul style="list-style-type: none"> <li>• Prevents expensive premature replacement of field line</li> <li>• Prevents raw sewage seepage to lawn surface</li> </ul>
<b>Tank Design and Construction</b>			
Superior tank strength	<ul style="list-style-type: none"> <li>• Engineered tank design</li> <li>• Superior 5,000 psi concrete strength</li> <li>• Prefabricated and precisely positioned rebar structure</li> </ul>	<ul style="list-style-type: none"> <li>• Do not have engineered design</li> <li>• May collapse after installation</li> <li>• Lack of or improperly positioned rebar can accelerate tank failure</li> </ul>	<ul style="list-style-type: none"> <li>• Prevents catastrophic failure due to ground pressure or riding lawn mowers</li> <li>• Septic tanks maintain structural integrity for at least 30 years</li> </ul>
Zero baffle wall failures	<ul style="list-style-type: none"> <li>• Thicker, monolithic wall baffle poured as part of tank walls, reinforced by rebar, remains perfectly positioned for life of tank, and functions perfectly to separate and retain solids from liquid waste</li> </ul>	<ul style="list-style-type: none"> <li>• Prone to failure due to thin design and being held in place by brick, baffle wall wobbles in place</li> <li>• Have no rebar reinforcing and are not tied directly into the tank walls</li> <li>• Exposed metal lifting wire leads to solids gathering around baffle wall passage</li> </ul>	<ul style="list-style-type: none"> <li>• Solids do not enter, increasing the life of the field line and decreasing system failure</li> <li>• Avoids replacement of septic tank due to baffle wall failure</li> <li>• Septic tanks perform like new 30 years after installation</li> </ul>
<b>Quality of Manufacturing</b>			
Consistent manufacturing methods	<ul style="list-style-type: none"> <li>• Zero defects quality philosophy</li> <li>• Methods validated by random audits by independent professional engineering firm</li> <li>• ACI-certified technicians and NPCA Production Quality School certified workers</li> </ul>	<ul style="list-style-type: none"> <li>• Do not employ ACI-certified technicians to ensure quality concrete</li> <li>• Production drawings are not available to manufacturing employees</li> </ul>	<ul style="list-style-type: none"> <li>• Ensures that each tank is built to the highest standards</li> <li>• Highest possible chance to receive a tank that has no defects</li> </ul>
Recognized tank expertise	<ul style="list-style-type: none"> <li>• Only septic tank manufacturing plant in East Tennessee that is NPCA-certified</li> <li>• Featured manufacturer in industry trade publications</li> <li>• Selected to provide products to solve international environmental issue on behalf of government agency</li> <li>• Manager serves on international tank quality assurance steering committee</li> <li>• Tanks used exclusively in more than 50 utility district projects</li> </ul>	<ul style="list-style-type: none"> <li>• Do not participate in recognized trade association</li> </ul>	<ul style="list-style-type: none"> <li>• Application of latest and best technologies</li> <li>• Continuous improvement through access to world-class experts</li> </ul>
<b>Life Cycle Cost</b>			
Lowest cost to install and maintain	<ul style="list-style-type: none"> <li>• High quality of tank design and construction maximize useful life of tank and field line</li> <li>• Provide lowest overall cost to install and maintain</li> </ul>	<ul style="list-style-type: none"> <li>• Faulty tank design and construction can lead to premature failure of tank and field line resulting in significantly increased operational costs</li> </ul>	<ul style="list-style-type: none"> <li>• Minimizes total cost to homeowner</li> </ul>

Source: Recreated with permission from C.R. Barger & Sons, Inc., <http://www.bargerandsons.com/site/demandbargerandsons.pdf> (accessed July 1, 2008).