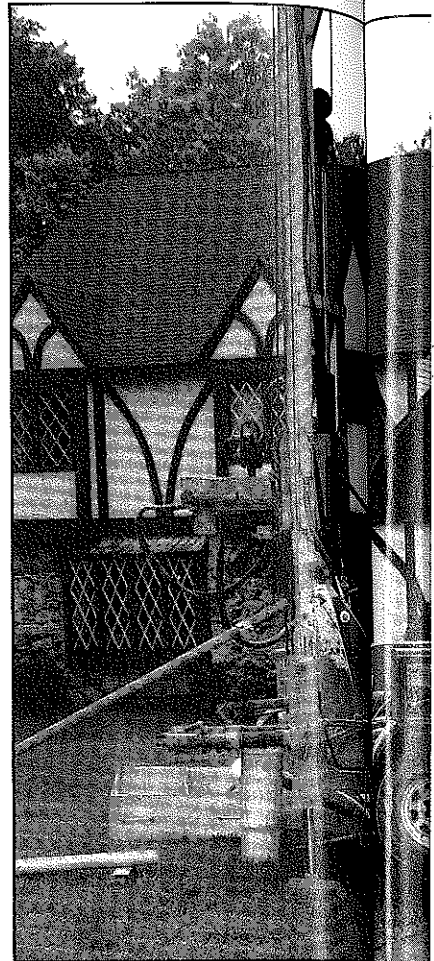


Turner Well Drilling: Conservative Business Style Creates Success

By Joni R. Jones



"I'm a wait and see kind of guy," Mike Turner says. "I take it as we go." His New Jersey companies, Turner Well Drilling and Turner Heating & Cooling, exhibit this conservative philosophy — with one small rig, a 25-mile working radius, and up until a year ago just two employees other than Turner and his wife, Sandy. This cautious approach to business, however, has produced solid success and steady growth over the past 15 years.

Turner Well Drilling, which drills water wells and geothermal wells, and Turner Heating & Cooling, which installs geothermal heating and cooling systems, are separate companies under

Turner's main corporation, Mill Pond Inc. The same crew works for both companies. Turner also works as a distributor of FHP (Florida Heat Pump) water source heat pumps to other water well and heating, ventilation, and cooling (HVAC) contractors.

Akin to his desire for steady, conservative growth, Turner is just as interested in helping the geothermal industry succeed as he is in making Mill Pond Inc. prosper. So he ensures both successes by actively promoting and explaining geothermal heat pump technology, which makes up 50 to 60 percent of Mill Pond Inc.'s business.

Looking Back

Many ground water

contractors started in water wells and have expanded into other services, such as heat pumps. Mill Pond Inc. developed in exactly the opposite direction. Mike Turner's geothermal heating and cooling business began drilling geothermal wells and water wells 12 years ago, after subcontracting geothermal drilling to other contractors during its first three years in business. "We saw a real advantage for us to control the whole job," Turner explains.

It soon turned out to be a bigger advantage than expected. Geothermal tax credits ended in the early '80s, decreasing an already low demand for geothermal systems; water well drilling quickly became Turner's



From left, Duffy Colton, Mike Turner, Gary Brill, and Jim Brandt set up their rig to drill a geothermal return well on a retrofit installation.

mainstay, while he continued to try to sell geothermal heat pump systems. "When we started, and even six or seven years ago, you could hardly give one away," Turner recalls. "It was just a real uphill battle." The company's geothermal sales have exploded in the last few years, but potable water wells still make up nearly half of Mill Pond Inc.'s work.

Water well drilling naturally followed the company's decision to drill supply and return wells for open-loop geothermal systems, because geothermal supply wells are identical to domestic water wells. Turner Well Drilling drills 4-inch-diameter, 100- to 150-foot-deep wells, and installs only Myers pumps.

Drilled in the sand and clay formations of south Jersey, they produce 25 to 50 or more gallons per minute (gpm). This abundance of water provides another link between water wells and geothermal supply wells.

One production well, given the identical construction and quantities of ground water available, can supply water for the house and for the geothermal heating and cooling system. This is one reason Turner's customers prefer open loop, a geothermal system which circulates ground water from a producing well through a water source heat pump. Since all the houses in Turner's town use ground water, they need a water well anyway. "Therefore

you're only looking at a return well as an added cost," Turner notes.

Geothermal return wells are also constructed basically the same as water wells, although they do not have a pump or tank installed. Turner uses the same quality screen, usually a Florida Johnson ribbed-type PVC with more open area than a typical slotted screen, and he also installs "a pitless adapter with a dropped leg below the static water level." New Jersey regulations require that the return well be the same depth and diameter as the supply well so it can adequately return water to the same aquifer.

Other incentives for open loop, as opposed to

a closed-loop system that circulates water enclosed in piping inside boreholes, are that it costs less to install and "you get a better performance out of the equipment," Turner says. Generally about one-third or one-quarter of the energy used to run the heat pump in the winter is supplied by electricity. The rest comes from the ground water, a renewable resource. "You're paying for one unit of heat and you're getting three delivered," Turner explains. Because of the higher efficiency, the utilities offer higher rebates to their customers who install open-loop systems.

Geothermal Hotbed

The utility rebate for using geothermal heat

pumps is one of a number of programs currently promoting the technology to area consumers. The New Jersey Heat Pump Council (NJHPC) is a nonprofit organization devoted to promoting and providing information about heat pumps. The state of New Jersey is doing its part at Stockton College, a local state-run institution located 3 miles from Mike Turner's base in Port Republic. According to Turner, it's one of the biggest geothermal projects in the world. The main portion of the college installed a closed-loop system in late 1993; it had a 1500-ton heating and cooling load — compared to Turner's 2- to 4-ton jobs.

Utility, NJHPC, and state efforts have created significant local interest in geothermal systems, and the industry has taken off. "We've been a hotbed for geothermal over the last couple of years," Turner notes.

Meanwhile, Turner doesn't just sit back and reap the fruits of their labor. He has been involved at every step, from attending meetings with the utilities to helping spark interest in the Stockton College project. "We didn't do any of the physical work, but I did act as a consultant as that project progressed," he acknowledges. Sandy Turner has also helped promote the technology; in 1993 she wrote an article for an NJHPC newsletter about the widespread use of geothermal heat pumps in their town (see sidebar, p. 68).

As an FHP distribu-

tor, Mike Turner has conducted several geothermal heat pump training seminars for HVAC and water well contractors. "I'm willing to tell anybody who's willing to listen how I do things," he states. He has no trade secrets — at least none he's not willing to share: "I'm interested in promoting geothermal technology and the well drilling that goes along with it."

Turner's efforts have been rewarded by the industry and by his customers. In 1993 NJHPC honored him and 11 others for "outstanding contribution to increasing awareness of high-efficiency heat pumps." And Turner's geothermal sales are flourishing. In the past seven years, Mill Pond's geothermal work has increased from about 15 percent to nearly 60 percent of its total business.

At the same time, Turner has increased his heat pump sales 500 percent, making him the fifth highest seller out of all of FHP's distributors in the country. "We're a much much smaller company than most of the other people we compete with. But that's a regional thing, too," he adds modestly. "New Jersey is very pro-geothermal right now."

Yet smallness has actually contributed to Mill Pond Inc.'s success. In fact, Turner believes his most important decision has been "to keep overhead low and quality high. Not to grow too fast. I've seen other companies come and go because they go out and buy fancy offices and try

to be bigger than they really are," he adds. "We've been very conservative in growth." Mingle in with the company's tremendous growth, this conservative smallness has kept expansion from getting out of hand.

Why Small (but Growing) Is Good

Turner Well Drilling operates a Buck Rogers 750, a small mud rotary drill rig made by Olathe Manufacturing. It can handle 20-foot casing and can drill, theoretically, to 760 feet, "but we rarely go over 200 feet," Turner says, and never past 300 feet. The trailer-mounted rig becomes an advantage when Turner installs geothermal systems on existing homes (retrofits). "We can get into some tight areas in backyards," he points out. The company's utility service truck, water truck, and dump truck (used to haul the backhoe and excavation equipment) are all 1-ton trucks, because, Turner explains, "they're more maneuverable."

The rig works well for the small projects the company does best. About 80 percent of its well drilling takes place at residential sites and 20 percent is light commercial — geothermal jobs at restaurants and small factories that need up to six to 10 wells. "We don't get involved with large-diameter drilling at all. We're just too small to be involved in large-scale projects," Turner says. "But we do a real good job on small and light commercial jobs."

With the current increase in business,

Turner thought about buying another rig. And then thought about it some more. "It's a big capital expense," he maintains. "You have to think carefully about it. I'll wait and see what happens next year," he adds, characteristically.

Although Turner sells heat pumps throughout New Jersey, he has tried to keep his drilling operations within 25 to 30 miles of Port Republic. Recently, because of pressure from the geothermal explosion in New Jersey, clients have asked him to go farther. "Since we have plenty of business close to home, we do that first," Turner states. "We turn some work down that's farther away." Even so, he estimates Turner Well Drilling will drill 120 to 130 wells this year, up from its average of 100. A little less than half of these wells are straight water wells, but most of the geothermal production wells also function as water wells.

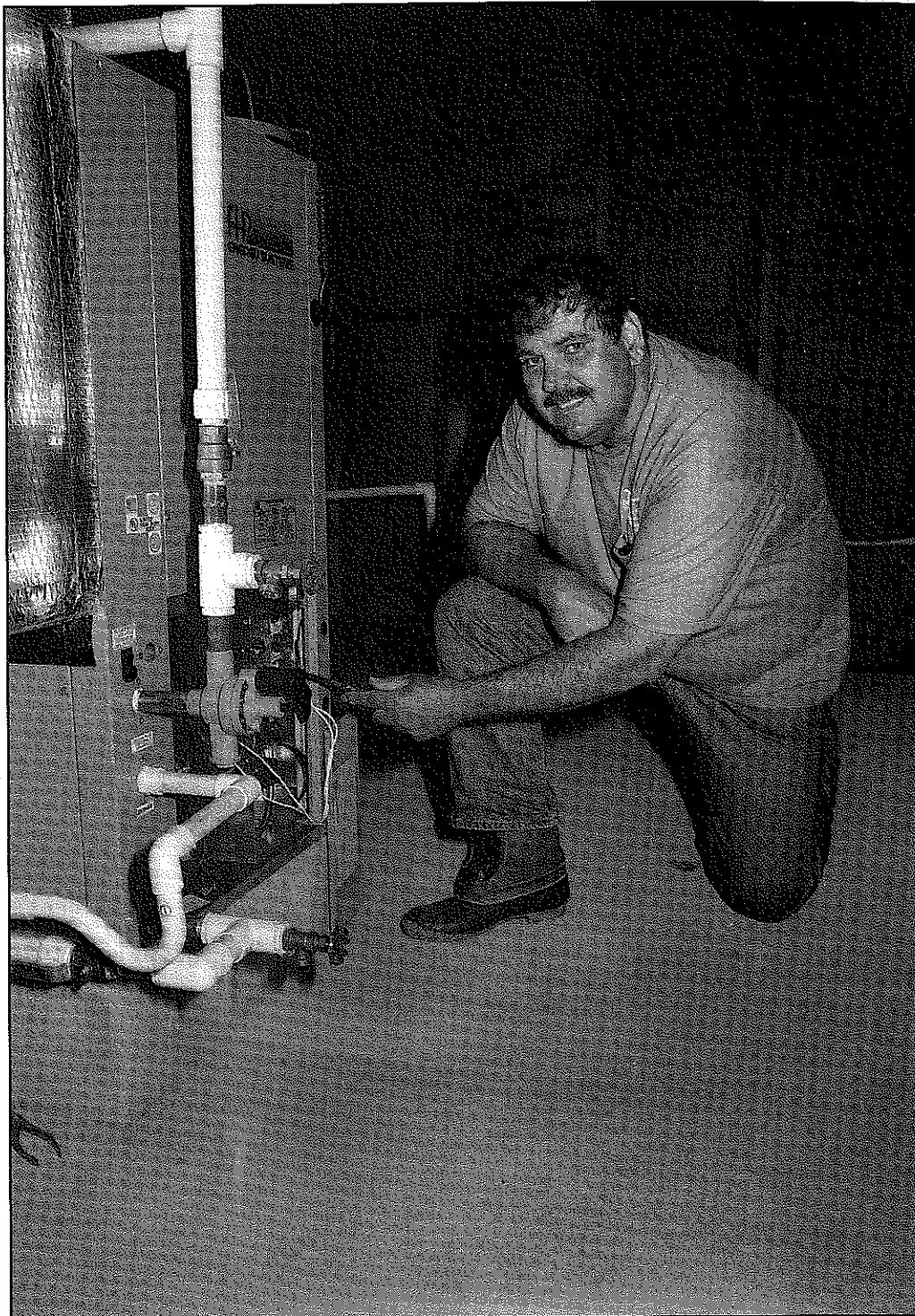
The company has grown from two to six employees since it began drilling wells 12 years ago, when Turner drilled alone and Sandy ran the air compressor. Sandy now runs the office: she schedules the work, sends the drillers out on service jobs, keeps track of daily recordkeeping, and sends out literature on heat pumps to potential customers — all a welcome change from the air compressor. Within the last year, Kara Snyder joined Sandy in the office to help out with the new computer system.

Mill Pond Inc.'s crew

consists of three people. Gary Brill, a licensed driller, has worked for Turner for nine years. Jim Brandt recently finished his New Jersey-required three-year apprenticeship as a driller's helper for the company and took his license test. And Duffy (Richard) Colton started about a year ago.

"We were just getting too busy to handle it," Turner admits. Adding just one more person to the field crew has made a tremendous difference. "They can take an extra piece of equipment with them to a job and often drill a well and hook it up in the same day," he explains. On large houses or light commercial jobs, they can also now drill two or three wells in one day.

Turner, a licensed drilling contractor and NJHPC Preferred Heat Pump Installer, now only goes out to the job site four or five times a week. So Brill basically manages field operations the rest of the time. Although Turner says he would rather still be out "getting muddy and drilling a hole," he enjoys the sales and marketing work he concentrates on now. He spends about half of his day outside making sales, checking the job site before installations, "or discussing with the homeowner what's going to happen when we get there." The rest of the time he's on the phone, "bidding jobs for installations or helping solve problems with my customers, which are the heat pump dealers that I sell to."



Mike Turner finishes this new home geothermal installation by hooking up the heat pump.

Once a Teacher . . .

As it turns out, Turner has had plenty of chances to put to use his six years spent as a schoolteacher before he entered this industry. He deals with HVAC contractors and other water well contractors who call

or attend his training seminars, "solving problems and helping them lay out closed-loop and open-loop systems," he says. (Although Turner doesn't install closed-loop systems, he sells heat pumps to contractors who do in other

parts of New Jersey.) He also teaches them how to market geothermal heat pumps and develop rebate programs with the utilities.

One of the main problems he hears from open-loop contractors is that a return well won't

Small Historic Town Embraces Geothermal Technology

Mill Pond Inc.'s conservative growth is mirrored by the small town it calls home. "This town's been here since the Revolutionary War and back then they had about 180 houses," Mike Turner says. Today Port Republic has grown to just 375 houses. And, surprisingly, 70 to 75 of these homes are geothermally heated and cooled.

Sandy Turner writes about this phenomenon in the NJHPC newsletter *Heat Pump News*: "Since all of the homes in this community use well water, the logical choice has been an open-loop geothermal system connected to their water well," she explains.

For new home builders, a geothermal system is actually less expensive than a traditional system. The water well and duct system are necessary anyway, and the heat pump costs about the same as a high-efficiency fossil fuel furnace and air conditioning system. Since, according to Mike Turner, utility rebates "generally exceed the cost of the return well," homeowners end up with more cash in their pocket even before the extremely efficient system begins saving them money on their utility bills. As a result, 95 percent of the homes built in the last 12 years have geothermal heating and cooling.

But the heat pump craze is not limited to new houses. Several older homes, some of them hundreds of years old, have installed geothermal heat pumps as well. While the upfront economics aren't necessarily as rewarding — occasionally a house needs new ductwork or a more powerful submersible pump — "it's still a good thing to look at," Turner believes.

A major incentive for historic homes is that geothermal systems have no outside unit. In her article, Sandy tells about a beautiful 100-year-old home that installed a geothermal heat pump. The owner wanted to add air conditioning without "detracting from the architecture of (the) home," Sandy writes.

The town's government has also recognized the benefits of this efficient and environmentally friendly technology. It added two geothermal heat pumps to its 60-year-old City Hall.

Luckily for Mike Turner, and the other geothermal well contractors in town, customers have been extremely happy with their heat pumps and have generated sales through word of mouth advertising. Turner is happy for another reason, too: with the number of geothermal systems in Port Republic, "if they didn't like them," he laughs, "they would have tarred and feathered me by now!" **WWJ**

take water. Turner says he has "found ways to solve just about all the problems" he's ever had with return wells. And, to promote geothermal technology, he's willing to pass along his solutions to other contractors. Turner tells them about an artesian well he used as a return well.

"When we drilled it, the supply well had a static water level of about minus 2 inches," he explains, "but the return well we drilled was actually flowing abovegrade about a foot." More water flowed out when they tried to return 8 to 10 gpm of water to the well. The solution? They developed the well to its full potential and put an airtight, watertight cap on it. "It's been running fine for about five years now," Turner reports.

Turner explains things simply and thoroughly, as I found out when he told me — in terms I could understand — how geothermal heat pumps operate in the winter. The ground water is pumped into a tank, and from that point it splits for domestic and geothermal use. "The heat pump actually cools the water. As it is chilled, the heat is removed and transferred into a refrigerant system (R22), and a compressor amplifies the heat to a higher temperature," he explains. The 55° ground water drops about 5° to 7°, and up to a 110° airstream discharges to heat the house. In the summer it works the opposite way, removing heat from the house and adding it to the ground water.

This talent for

explaining has added to Turner's success as a heat pump distributor and as a contractor. His success also comes from always basing a sale on quality work, never on price. "I believe it's important to make a profit, so we don't get into pricing wars," he maintains. Sandy believes satisfied customers and quality work are key. "We're not necessarily the cheapest, and we still get our share of work," she points out.

Keeping Up with the Future

The U.S. Department of Energy has set a goal to have 400,000 geothermal heat pumps installed by the year 2000. That tremendous figure is hard for Turner to believe: "I don't know how it's going to be done," he admits. "Obviously we're going to have to get bigger to stay in the market."

But, true to his nature, he's not getting ahead of himself or the industry. Turner believes his company "can have a relatively strong growth," but adds, "I'm not bent on growing five times my size. It looks real good for the geothermal end of things, and I intend to keep doing what we're doing as long as we can."

One sure way to continue on his successful path is to make certain the industry continues to grow. So that's what Turner plans to do: "I think I would be happier to help other people be successful and expand in this business, and hopefully reap some of the benefits by selling them heat pumps." **WWJ**