



IWA PIPELINE



SUMMER 1997

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FROM WELL TO FAUCET



In the last issue of the *Pipeline*, we discussed how we construct the wells which supply us with our raw water. The next step is to turn that raw water into something which we can safely drink, and which doesn't taste all that bad either.

When the raw water is pumped from our wells, it's too salty for drinking or for irrigation of most vegetation. It also smells like rotten eggs, and it's so corrosive it would quickly destroy home plumbing. Pretty nasty stuff, and turning it into drinking water is neither simple nor cheap. It involves a number of steps, the primary one of which is Reverse Osmosis, or RO.

Reverse Osmosis really isn't all that difficult to understand. It's basically just what the name says ... the reverse of osmosis. Osmosis is defined as the tendency of two waters of different qualities (mineral contents) to equalize through a membrane by flowing from the higher quality side to the lower quality side. This obviously isn't very useful, since it results in less of the higher quality water. In reverse osmosis, we solve that problem by apply-

ing pressure to the lower quality side. This reverses the process, and the flow is now from the lower quality side to the higher quality side, thereby giving us more of the better quality water. This is the basis for RO treatment, as practiced in our plant located at 3651 Sanibel-Captiva Road. In our case, the lower quality water to which we apply pressure is the raw water from the wells, and the higher quality water is the plant product ... our drinking water.

In order to accomplish RO in our plant, the water from the wells, which enters the plant at around 40 pounds per square inch pressure (psi), first passes through cartridge filters. These devices physically remove particles larger than one micron ($4/100,000^{\text{th}}$ of an inch) in diameter. This prevents these particles from plugging the expensive RO membranes which are next in the treatment process. At this point, a very small amount of a compound is also added to prevent membrane plugging from deposits which can result from dissolved impurities in the raw water.

Next, the water flows into the six high pressure pumps, each with a 250 horsepower electric motor. These pumps increase the water pressure to around 200 psi (three times faucet pressure) and send it on into the membranes. This increased pressure causes the reverse osmosis process described above to occur. The raw water is separated into a higher quality stream, which eventually becomes our drinking water and a lower quality stream containing most of the impurities in the raw water. This lower quality stream (about $1/3$ the salinity of sea water) is known as brine. It is discharged to the Gulf of Mexico after further treatment and is monitored by the Florida Department of Environmental Protection.

But we're not done treating the water at this

point. Unfortunately, the RO membranes do not remove the rotten egg odor of the raw water, which is caused by a gas known as Hydrogen Sulfide. In our RO Plant, we use a unique process known as Sulfide Conversion to remove this gas. This process, which was developed and patented at IWA, chemically converts the Hydrogen Sulfide to other harmless impurities without discharging it (and its odor) to the atmosphere. This process also avoids adding Oxygen to our water, which helps minimize its corrosiveness, and thereby helps protect our home plumbing systems from damage.

You might think we're finally finished at this point ... but no-o-o-o. Next we have to add a compound to balance the acidity of the water and keep it near neutral (pH=7.8). Then we also have to add Chlorine to disinfect the water and to prevent bacteriological contamination until it is finally consumed by our members. Chlorine levels are kept as low as possible, consistent with maintaining the government required minimum level throughout our system. Finally, we add a very small amount of a corrosion-preventing compound to further protect our home plumbing systems.

All told, last year this treatment process consumed nearly \$500,000 worth of electricity and \$250,000 of chemicals ... not to mention a lot of manpower to make sure everything works correctly and safely 24 hours a day, 7 days a week.

Whew!!! That's a lot of work just to make safe drinking water. And we didn't even discuss how we treat the brine stream before it's discharged into the Gulf. That's a good topic for a future issue of the *Pipeline*. If the suspense is killing you, you can read the next installment now on our Internet site at <http://www.islandwater.com>.

THANKS FOR COMING!!

To our Annual Meeting on April 14th, that is. If you missed this year, mark your calendars now for next year ... April 13th. This year's meeting was fairly well attended by historical standards, but there were still a lot of empty seats!

At the meeting, President Robert Wigley reported that 1996 was another year of continued success at IWA. Expenditures continue to be under control, at a level below that back in 1992. Water sales revenues were within 0.2% of forecast levels. As a result of these factors, no rate increase is foreseen in the near future.

General Manager Roger Blind provided details regarding IWA's 1996 accomplishments. Water production was up 5.5% from 1995, amounting to 1.1 billion gallons. Operating and maintenance expenditures were down by \$80,000, despite the increased production. IWA employees (7 fewer than in 1993) are working hard to keep costs under control, by cross-training to increase their flexibility to cover each other's absences and by increasing efficiency through the greater use of computers in all facets of our operations.

Vice President/Treasurer Harley Derleth reported that IWA remains financially very strong. Our financial reserves are conservatively invested for safety of principal and reasonable return. The IWA Board continues to devote significant attention to ensure that our water is of the highest quality and that our operations are responsive to local environmental issues.

After the reports were complete, members raised a number of questions on a variety of topics, ranging from how much water we have in storage (15 million gallons) to whether water restrictions should apply to us (regardless of whether they should, they do).

Timothy A. Gardner, Paul E. Garvey and Paul R. Storves were re-elected for two-year terms on the Board.

After the meeting was adjourned, several members took the opportunity to tour the Reverse Osmosis Plant.

At a special meeting of the Board of Directors following the Annual Meeting, officers for next year were elected as follows: President, Robert J. Wigley; Vice Presidents, Paul E. Garvey and Paul R. Storves; Vice President/Secretary, Timothy A. Gardner; Vice President/Treasurer, Harley R. Derleth.

OH YES!! BACKFLOW!!

The title of this article may seem familiar to you! In the last issue of the *Pipeline*, there was an article entitled "Oh No!! Not Backflow." In that article, we discussed IWA's program to require the installation of backflow prevention devices on all member water services to protect our system from contamination resulting from backflow from members' premises.

Well ... it (almost) happened. A commercial establishment on Sanibel had cross-connected their gray-water/irrigation system with their potable/

drinking water system and then opened and closed the wrong valves. The irrigation system used treated sewage effluent, which then entered the potable water piping and flowed throughout the piping system to every point, including the kitchen and drinking fountains. The Lee County Health Department was called and advised the establishment on correct decontamination procedures. Luckily, as far as we are aware, no one got sick from this incident.

Also luckily, this establishment had just complied with our requirement to add a backflow prevention device. This prevented the contaminated water from entering our system and being sent to other members, which would have been a very serious problem.

The lesson? It can happen, and it does! Backflow prevention devices can and do prevent possibly very serious public health problems. Remember this incident when we notify you that it's your turn to join other members already in the program and install such a device.

MEET DEBORAH RODRIGUEZ



Deborah Rodriguez joined IWA nearly 9 years ago, way back in 1988. She currently holds the position of Membership Administrator.

Deborah and her family lived on Sanibel during her college years, where they owned and operated the Tarpon Bay Marina for many years. Before joining IWA, Deborah worked as an elementary school teacher in the Tampa area.

At IWA, Deborah's job consists of customer service (she's usually the one who answers your questions when you call us), getting out all 4,400

bills every month and whatever else we ask her to do. When asked for the strangest question she has ever had to answer, she had a hard time narrowing the list down to just one. However, clearly near the top of the list was a question which implied that we had a problem with our hot water distribution system. The caller had plenty of cold water, but not enough of the hot variety. Deborah suggested that a check of the hot water tank might be in order.

Deborah and her daughter Rachel reside in Fort Myers, where she is involved with both the Girl Scouts and the American Business Women's Association (ABWA). With the Girl Scouts, she manages several local troops and also has her own troop on Sanibel. With ABWA, Deborah is the Editor of the award-winning newsletter and has been named Chapter Woman of the Year twice and Regional Woman of the Year once. She will be President of the Fort Myers Beach chapter next year.

Deborah says she likes working at IWA because she likes the "good old-fashioned small town values" of our Islands and her co-workers. She says her motto is, "You can sleep later; make your mark in the world now." She's certainly done that at IWA (we've never caught her sleeping!)

IT'S HARD TO BE RIGHT!!

Did you ever find yourself in what seems like a no-win situation? Well our Distribution Technicians sometimes feel that way too.

When the Technicians are reading meters, they sometimes notice water leaks. When they observe this situation, they knock on the door to inform the member of the possible problem. If someone is home, that's usually the end of the story.

However, if no one is home, that's when things become a little more difficult. The technician then calls our office and we phone the member about the situation. However, frequently no one answers the phone either (be sure we have your current phone number and/or a local contact!). In that case, we sometimes hang a notice of the possible problem on the door knob and we send a letter at the same time. However, some members feel the door hanger might notify potential burglars of their absence, so they object to that option. Other members believe that the letters take too long. In some cases, we've resorted to turning-off the water at the meter to stop the leak, if all else fails.

However, occasionally that has resulted in members suddenly finding themselves without water.

The bottom line is that we are only trying to prevent the waste of water and the resulting very large water bills and possible house damage. Please bear with us in this attempt and accept our apology in advance if our efforts lead to some short-term inconvenience for you. We'll resolve it as quickly as we can, once you notify us.

HAPPY CRITTERS

We're very proud to say that in April, IWA became the first business recipient of the *Landscaping for Wildlife* award from the Sanibel-Captiva Conservation Foundation.

This award is based on four principles:

1. Preserving and planting native vegetation.
2. Ceasing use of harmful lawn chemicals.
3. Eliminating invasive plants that reduce habitat diversity.
4. Employing landscape water conservation practices.

At IWA, we've added new vegetation around our office building and we've killed all the Brazilian Pepper at our several locations. We've not installed an irrigation system, and we keep chemical usage to an absolute minimum.

The critters seem to love it! We have a lot of different species of birds, along with butterflies and other island creatures. It looks great as well!

The Island Water Association, Inc.
P.O. Box 509
Sanibel, FL 33957

Stop in and take a look anytime during normal business hours. We'd be happy to show you around!

AN "A" FOR ACHIEVEMENT



Level III Plant Operators, Robbie Smith and Joe Scofield recently received their "A" licenses from the State Of Florida. This license (the highest possible) requires a minimum of five years of job experience and passing a difficult examination. This brings the number of "A" plant operating licenses held by IWA employees to seven, with three more holding "B" licenses, two with "C's" and two trainees working feverishly to get their "C's". The State requires that we have only one "B" licensed operator and at least one licensed operator (any level) on duty at all times. Doesn't this level of competence among IWA's operators make you feel good about the quality and safety of your water?!?!?

Congratulations Robbie and Joe!!

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