



# IWA PIPELINE



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## WHEW!! ... AND DOUBLE WHEW!!!!



That's two "whew's" and it's how everyone at IWA and many other people in Southwest Florida feel as this year's hurricane season finally draws to a close. Both Hurricane Georges in late September and Tropical Storm Mitch in early November gave us a little something to think about, but thankfully we can now take down our storm shutters and forget about hurricanes until next June.

At Island Water, hurricane Georges was taken very seriously. At one point, it looked as though the storm would pass very near (or over) our islands at a strength well in excess of 100 miles per hour (mph). For many years we have had a plan for dealing with storms, but up until Georges, we had never really had to put it to a real, full-blown test. The plan was to shut down our reverse osmosis (RO) treatment plant and to close the appropriate valves in our distribution system to limit the amount of water vulnerable to loss from broken mains to 4 millions gallons, contained in our 2 million gallon tank at the City park on Periwinkle and the identical size tank located on the North end of

Sanibel, just off Sanibel-Captiva Road in the Wulfert area. This would leave us with 10 million gallons on Sanibel at the RO Plant and one million gallons on Captiva in South Seas Plantation for use while we got the treatment plant back up and running after the storm passed-over.

However, with the storm bearing down on us, we decided that we would be better-off after it passed-over to have our water more distributed around the islands, instead of just at the RO Plant and on Captiva. Therefore, we modified the plan to limit loss to a portion of one of our 5 million gallon tanks at the RO Plant, leaving the Periwinkle and Wulfert tanks full, for use in serving both ends of Sanibel (in addition to the Captiva tank), even if the water mains between them were destroyed. We quickly modified our plans and implemented them. Some employees were busy installing storm shutters on all of our buildings. Others filled-up the fuel tanks in all our vehicles and moved them to secure parking locations. Of course there were also a myriad of other preparations to complete as the storm approached.

At the same time, we realized that after the storm we might have many major water main repairs to make and that our medium-size backhoe might be inadequate for the required heavy excavation work. We therefore rented a very large piece of earthmoving equipment and had it delivered to our facilities so that it would be available for our use, even if the causeway were lost during the storm. Getting someone to move such an expensive piece of equipment on to a barrier island about to be hit by a hurricane was not easy. Fortunately, the contractor we have used for years for pipeline construction, Cabana Construction, agreed to do so, and for that we owe them a great deal of thanks.

With all our (modified) preparations made, it

was now time to implement the last step of the plan, which was to put our pumping equipment in automatic control and to allow all employees to leave the islands until it was safe to return. By that time, it appeared that Georges might hit us as a category 2 or marginal category 3 hurricane, with winds of around 120 mph. At that point, four key employees volunteered to remain on the islands to do their best to ensure that our systems continued to function and to provide water service for fire protection and whatever other emergency needs arose. This was not an easy decision, since they would not be able to leave at some point, if the causeway were closed due to flooding and/or high winds. We decided that our facilities could withstand the forecast worst case and that the employees would not be in any serious danger, so everyone else left and the four began to set up cots for sleeping, scrounge for food (as a more tasty alternative to the freeze-dried meals in our emergency stores) and prepare for an interesting day or two. At least we knew they would have plenty of water to drink! And our emergency generators (three of them) would ensure that they had power.

Within a few hours, the City of Sanibel and Lee County both declared voluntary and then mandatory evacuations. Some key employees at the City and at the fire departments on both islands also chose to remain on the islands to continue essential services. We remained in close contact with them and constantly shared information from many sources on the storm's progress. Before too long, that information began to indicate that the storm might be making a slight turn to the west, taking it further out into the Gulf of Mexico.

Meanwhile, our remaining employees took the additional step of lowering water pressure to reduce the loss from any main breaks that might occur. What we didn't count-on was the fact that, even though there was nearly no one left on the islands, automatic lawn irrigation sprinklers would continue to operate as long as we had electricity. The next morning, after a rather fitful night's "sleep", we found that so much water had been used by the sprinklers over night, that we had to restart the RO Plant and refill the tanks. We did that over the next several hours (in quite windy conditions), and then shut the plant down again to await the delayed arrival of Georges. There is an important lesson to be learned here ... **SHUT-OFF YOUR LAWN SPRINKLER SYSTEM IF YOU EVACUATE FOR A HURRICANE!** In fact, to minimize potential damage to your house, it is a good

idea to turn-off the water to your entire house when you leave.

Of course the final chapter of this story is that Georges never got closer than 75 miles to the islands. Winds were only moderate, and virtually no rain fell. We lost power for only a couple of hours and we started-up our generators to maintain critical functions (such as cooking dinner!). The cloud formations were fascinating and we had a beautiful sunset about when we were supposed to have been in the worst part of the storm. It was a close call, but thankfully nothing more. We returned to normal work hours the next day, and the four people who remained behind went home, after 50+ hours on the job. We sustained minor water damage to some of our instrumentation caused by condensation off an air conditioning duct (yes, it got VERY humid as the storm passed-by!). That damage was quickly repaired using spare parts already in our possession.

One of our sister utilities in Collier County made a very different decision than that at IWA. They chose to shut down the water system until the storm was over. That resulted in a total loss of fire protection and caused considerable inconvenience for those who chose not to evacuate. Also, their system was later found to be contaminated when it was put back into service, since it had not been kept under pressure. Neither IWA's original plans nor those actually implemented ever envisaged purposely shutting-down our entire system, for just those reasons. However, for a short time we did shut-off one very vulnerable water main on the Gulf side of Sanibel-Captiva Road near Blind Pass, affecting about a dozen customers, none of whom appeared to be home at the time.

We had just re-written our plans to reflect what we learned in Georges and had begun to forget about the experience, when along came hurricane Mitch. At one point, Mitch was an even more powerful storm than Georges, with winds of over 180 mph. We really weren't very enthusiastic about participating in round two of the hurricane season with Mitch. However, we kept a very close watch on it as it wreaked havoc in Central America for several days and then finally tuned our way as a minimal tropical storm. In the end, it passed more-or-less right over the islands and dropped several inches of rain and a few branches on us. But this storm did not pose anywhere near the threat of Georges, and IWA continued work as usual during its passage. In fact, as soon as the rains and winds stopped, we immediately began to

make plans to remove the storm shutters that had been obscuring our view for so long!

The 1998 hurricane season certainly was an "interesting" one, and our emergency plans are better for the experience. However, let's hope we don't have to test them again in the near future!

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## A DIFFERENT KIND OF WELL

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IWA is about to embark on its largest capital project since the company was formed in 1965. This project will involve the construction of a deep injection well, at an estimated cost of \$4 million.

IWA already has a total of 16 water production wells on the island, all of them about 750 feet deep and costing around \$200,000 dollars each (thankfully, many of them were drilled for much less, many years ago!). These existing wells provide water to our reverse osmosis (RO) treatment plant to make our potable (drinking) water. The new well will be very different from these existing wells. It will be around 3,000 feet deep and will be used for disposal of both IWA's brine concentrate stream and the City of Sanibel's excess treated effluent during wet weather periods.

The RO Plant produces 8 gallons of potable water for every 10 gallons of water fed to the plant from the existing wells mentioned above. The remaining 2 gallons becomes concentrated well water, which we call brine. It is about 1/3<sup>rd</sup> the salt content of seawater, and for the last 30+ years, it has been discharged into the Gulf of Mexico via a pipe running around 600 feet offshore. The brine is treated to remove some constituents and to add Oxygen before it is discharged. In all the years we have used this discharge system, we have never violated our discharge permit, nor detected any problems resulting from it. In fact, it is a very good place to fish, especially in the winter, when the fish seem to love the constant 84 degree temperature. Big snook have been known to be caught there (no, we will not reveal the exact location!).

Despite our excellent past experience with our existing brine discharge system, IWA is well aware that surface discharges such as ours are coming under increasing scrutiny by the many involved regulatory agencies. Just a few years ago, we had to spend a considerable sum of money to further treat our brine steam to meet new requirements. We have always suspected that, at some point, regulations would further stiffen to where economics would dictate that we would have to find another way to dispose of our brine. In addition, we

have always also been concerned about the vulnerability of our discharge pipe during a major hurricane. It is buried about 3 feet deep in the bottom of the Gulf of Mexico. Without this pipe, which would be very difficult and expensive to repair, we could not operate our RO Plant.

At the same time as IWA was considering all these matters, the City of Sanibel found it had a problem disposing of all of its treated wastewater effluent during last Winter's extreme El Niño rains. Basically, as with all sewer systems, ground water infiltration into sewers on Sanibel increases during rainy periods, thereby increasing the flow to be treated. At the same time, normal irrigation usage of the treated effluent (on golf courses, lawns, etc.) practically stops. This "double-whammy" of increased flow to the treatment plant and decreased usage of the effluent is a common problem, and last year it resulted in some of the storage ponds overflowing on the island.

During a discussion of these matters at a meeting of the IWA Board of Directors, it became apparent that we had an opportunity to improve IWA's brine disposal system and at the same time assist the City of Sanibel (and therefore our Sanibel members) with their wet weather effluent disposal problem. The Board decided to propose to the City that IWA construct a deep injection well for both fluids and that the two organizations share in the costs, based on anticipated relative usage rates. In addition to providing both organizations with a more environmentally benign disposal option, IWA's brine treatment costs will decrease with a deep injection well, since there is obviously no reason to add Oxygen to water that we are pumping into the ground (where few fish are known to live!). It is also obvious that one well will be preferable to two wells from both environmental and economic standpoints.

IWA proposed this option to the City. After a few weeks of negotiations, an agreement for such a project was approved by both Sanibel City Council and the IWA Board of Directors. The well will be owned and operated by IWA, with the City contributing towards construction and operating costs. An allowance was also made in the well design to accommodate flow from Captiva, in the event that a central sewer system is installed on that island at some future date.

An obvious question regarding the injection well is whether it will endanger our potable water supply. We are confident that will not happen. There are already around 70 deep injection wells

in Florida, several of which are located in Southwest Florida. It is a mature, proven technology. In order for a problem to occur, the injected fluids would have to migrate upward through around 2,000 feet of rock. Given the well design, the geology of the islands and the nature of the fluids we will be injecting, this upward migration is extremely unlikely. Even if it did occur, we will have multiple systems to detect the problem long before it affects our potable water supply wells and in plenty of time to take corrective action.

In the next couple of issues of the *Pipeline*, we will explain in more detail how the deep injection well will be constructed, the construction schedule, and how it will be financed. We will also explain the many safeguards that will be installed to prevent any adverse affects on our water supply & the environment in general.

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## FAREWELL PAUL STORVES WELCOME BOB DAVISON

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In June, Paul R. Storves resigned his position as Vice President on the IWA Board of Directors. Paul had served on the Board since 1995 and during his tenure provided valuable insight from his many years as a DuPont executive. He has decided to relocate to Aiken, South Carolina, and the entire Board and staff of IWA thank him for his service and wish him all the best "up North."

In November, the Board voted to appoint Bob Davison to replace Paul. Bob, who recently retired from Sanibel City Council, will serve-out the remainder of Paul's term until next April, at which time the position will be open to the normal election procedure.

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## IWA NEEDS YOU!!!

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It's election time at IWA again, and this year three seats on our Board of Directors will be up for election. The seats are currently held by T. A. (Tim) Gardner, P. E. (Paul) Garvey and R. B. Davison. Tim, the Board President, is completing his third, and last two-year term. Paul, the Board Secretary and Vice President, is completing his second term and is eligible for re-election for one more term. Bob, a Board Vice President, is eligible for election to his first full term of service, having served the remainder of the term of former Director Paul Storves since November 1998.

IWA is governed by a five member Board of Directors who serve without pay. Directors must be year-round residents of Sanibel or Captiva and must be IWA members or an official representative of a condominium or other IWA corporate member. Meetings are normally held on the fourth Tuesday of every month. Directors are elected by the membership at IWA's Annual Meeting to be held in April.

Anyone who would like more information should contact our Administrative Assistant, Lori Thompson, at 472-2113, extension 125.

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