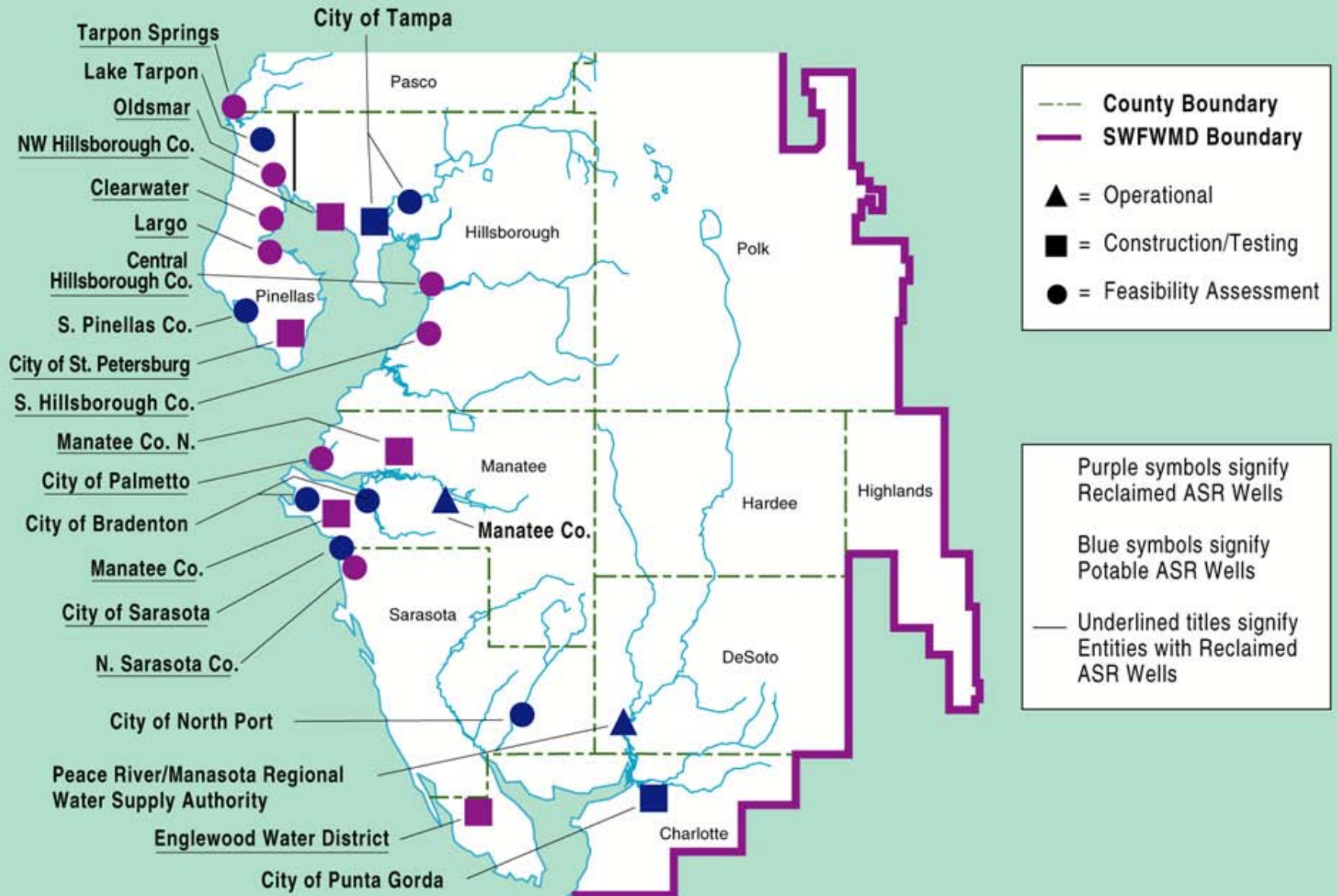


Water Resource Management The View From Here A SWFWMD Perspective

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Aquifer Storage and Recovery (ASR) Wells in the SWFWMD



Our problem:

Most immediate issue is Arsenic mobilization

- Is it a fatal flaw?
- How did we get to this point?
- Are we getting the guidance we need?
- We can only fund permittable projects
- Are they permittable in 2006 or 2007?
- How did we allow expansion of projects with Arsenic in excess of 50 ppb much less the 10 ppb?
- We have to make responsible decisions regarding funding that involves tens of millions of dollars at a time, are we being responsible?

Our problem (continued)

- We are told the problem is self correcting, is this true?
- We look at the data and don't see the 10 ppb standard being reached
- Can technology provide the assurance needed if self correction doesn't occur?
- Three different camps:
 1. Regulators (FDEP)
 2. Financers (District and Utilities)
 3. Spenders (Consultants)

City of Tampa Rome Ave Park Potable Water ASR

- Case example of a utility that did everything right but still got caught in the middle
 - First test well went beautifully
 - * 100% recovery
 - * No real permitting issues of significance
 - * Ordinance to switch well owners over to public system to address potential drawdown impacts
 - City decided to expand system all at once (seven new wells)
- (I may have the timing off a little but not by much)

City of Tampa Rome Ave Park Potable Water ASR

- After the bids were received and construction on expansion started, Arsenic was identified in an old sample by FGS
- Better late than never? Thank you Jon?
- Really not a problem, because it was within the 50 ppb standard, but all knew that a new standard was coming
- Construction continued, but the City decided to build a new pipeline back to the water treatment plant to remove As and provide same quality to all. They did the right thing.
 - They solved the problem
 - Right?
 - FDEP thought so

City of Tampa Rome Ave Park Potable Water ASR

- Well, for a little while at least.
- Until the rules were fully explored and determined that the drinking water standards applied at “all times”
- Which of course, means even during storage
- Logical, since others using aquifer may intercept and capture mobilized arsenic
- Except in the case of the City, they passed the ordinance
 - However, the ordinance isn't an aquifer exemption
 - To top it off, the standard was announced changing it from 50 ppb to 10 ppb

City of Tampa Rome Ave Park Potable Water ASR

- The City did just about everything right, they got caught up with a new problem with moving targets
- In fact, pretty much all that is known about AS is derived from data collected by the City. They easily have the most complete set of data.
- Their problem can be explained, reasonable people can understand how they expanded and how they got caught.
- Can we say the same for other expansions?
 - Test wells are different than expansions.
- It's the expansion that shouldn't occur if AS hasn't been solved first

What About Other Sites?

- The Tampa experience is one thing, but how do other sites fit into the timeline?
- We haven't tested a single site yet that didn't return As
- Punta Gorda, NW Hillsborough, Peace River, Englewood and the Orlando drainage wells, all have As in excess of 10 ppb. The maximum at many of these sites is still unknown.
 - New wells at Peace River Facility were as high as 150 ppb
 - We see the front reaching and concentrations increasing at monitoring wells
- All in all, not the information you want hanging over you when you have to decide to spend 10 to 20 million dollars

When Do You Stop?

- The As issue is significant, but combine it with poor recovery efficiency and increasing monitoring costs, you reach a point where you wonder when you throw in the towel.
- And we are still receiving new cooperative funding requests each year
- **The answer, we can't, we have too much at stake.**
- **We are going to continue, but we will be funding research of pre-treatment, along with evaluation of other methods to control the problem**