

*2012 Lower East Coast
Water Supply Plan Update
WORKSHOP #3
June 19, 2012*

Aquifer Storage & Recovery (ASR)

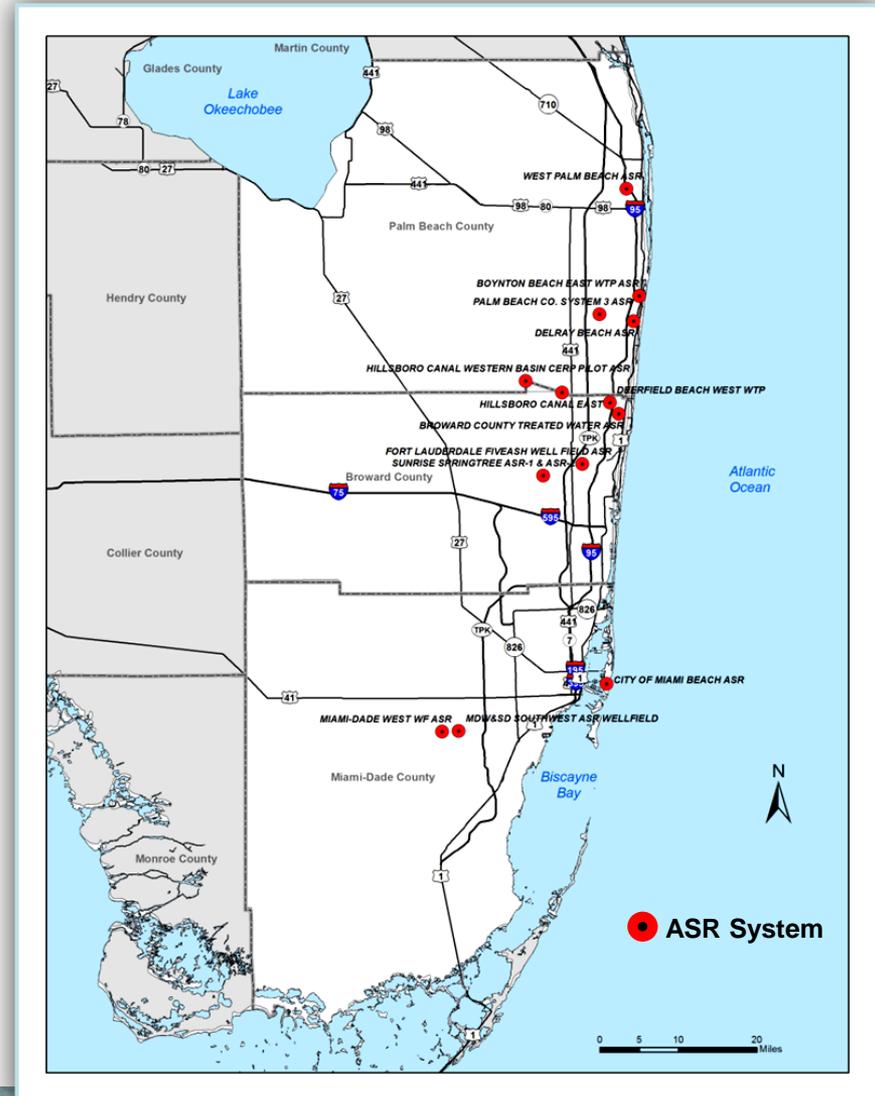
Bob Verrastro, P.G.
Lead Hydrologist
Water Supply Bureau



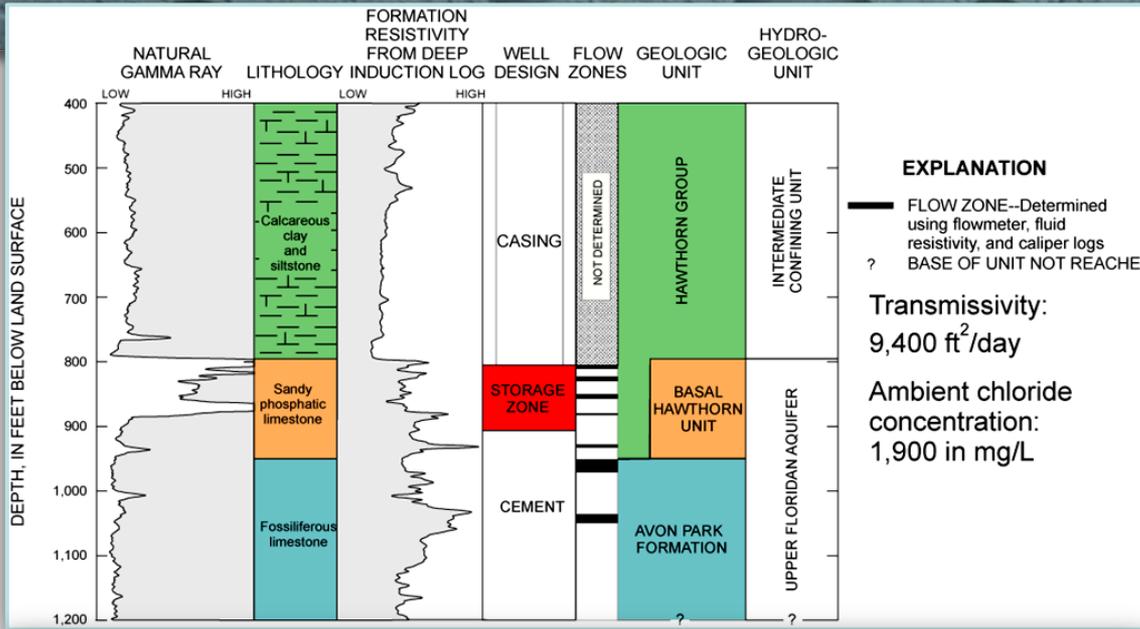
The Sunrise Springtree ASR Well

ASR in the LEC

- Several utilities installed ASR systems at WTPs
- Potable water primary source
- Mixed recovery efficiencies and mechanical problems confounded projects
- Volumes tested relatively small
- Arsenic issue emerged in 1990s
- Regulatory climate was cautious
- Most wells are dormant or being converted to “blending wells”

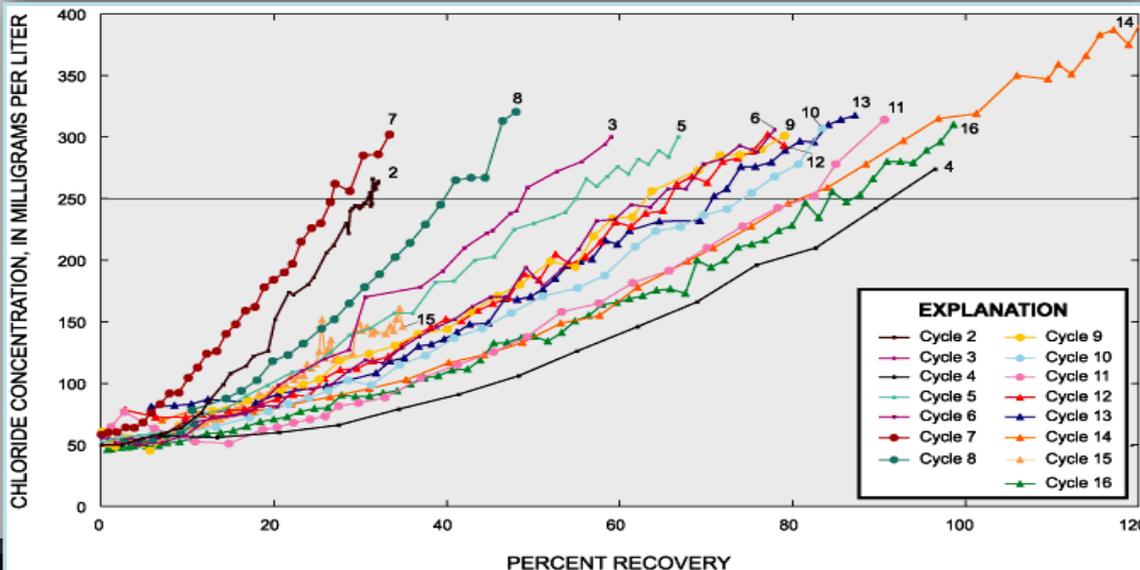


The Boynton Beach System



To date, the most successful ASR system in LEC..... why?

- Targeted storage zone at top of FAS
- Sandy, low transmissivity interval
- Multiple successive cycles
- Recovery efficiency near 100%



Interesting Tests are on Their Way....

West Palm Beach

- High capacity well: 8 MGD
- Completed in a FAS zone with 3,000 mg/L TDS
- Pursuing a “minor” aquifer exemption to test surface water without disinfection

Miami-Dade West & Southwest Wellfields

- Idle since 2000
- UV systems recently installed
- Will test with groundwater from Biscayne aquifer



Lessons Learned from the CERP ASR Projects



- High capacity (5 MGD) wells are possible
- Minimally treated surface water works well as a source
- Tests indicate arsenic mobilization can be inhibited, but costs are high
- Ongoing studies support reduction in disinfection requirement

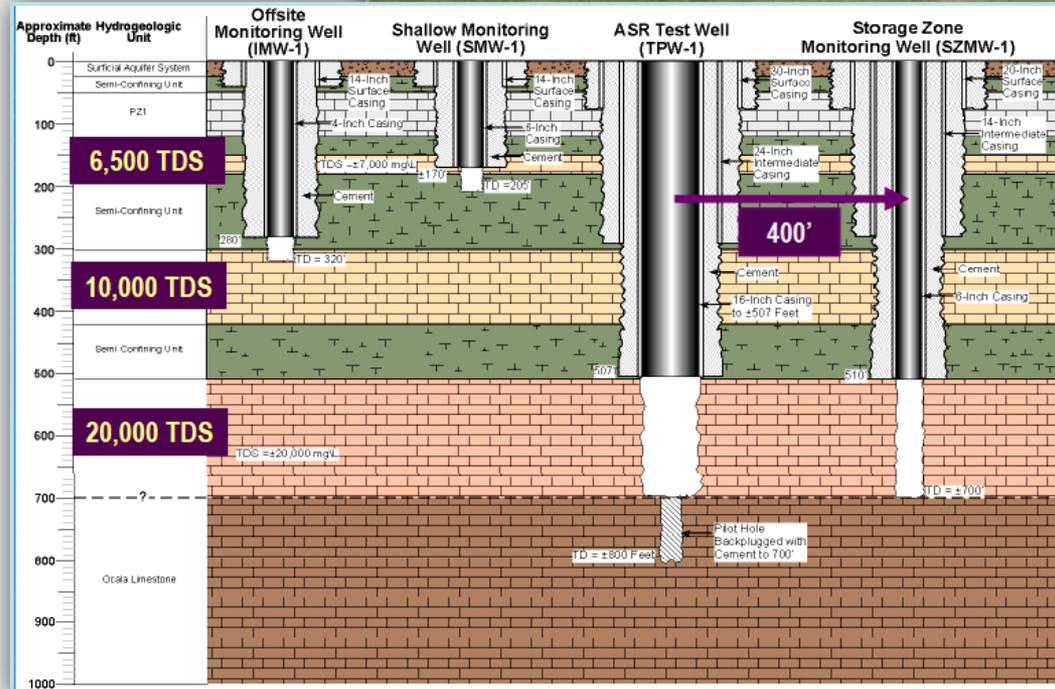
Marco Island System

- Largest ASR system in the SFWMD
- 7 wells, 9 MGD capacity, since 1997
- Arsenic not a problem
- 1.7 billion gallons currently stored
- Pump treated surface water to ~750' deep – sandy portion at top of Floridan aquifer



Englewood ASR System: Reclaimed Water

- Potential well design to comply with Ocean Outfall Rule
- Completed in Floridan aquifer zone with $>10,000$ TDS water
- Recovered water is routed to reuse pump station
- Blended with reclaimed water
- No additional treatment required
- Recovery efficiency is not critical; well provides for wet weather disposal capacity



Conclusions

- ASR is a viable technology, but a robust commitment to testing must be made
- Well design and construction is critical to achieving high recovery efficiency
- Native water quality in the aquifer currently drives the degree of treatment
- Technology exists to inhibit arsenic mobilization
- Studies expected to demonstrate only limited treatment necessary
- Use of raw water would facilitate larger testing programs

COMING UP

