Mark B. McNeal, P.G.

Chief Executive Officer
ASRus, LLC
2309 Cape Bend Avenue
Tampa, FL 33613

Education

B.S., Geological Engineering, Brigham Young University, 1984

Professional Registrations

Professional Geologist: Florida

Relevant Experience

Mr. McNeal is currently the Chief Executive Officer for ASRus, LLC. Mr. McNeal has 24 years of experience in hydrogeologic investigations in Florida, including project management of Aquifer Storage Recovery (ASR), deep injection well, reuse, and water supply projects; well construction inspection; computer modeling of groundwater systems; data analysis; geologic description of drilling samples; geophysical logging and interpretation; aquifer pumping test design and analysis; system startup; and operational testing. Mr. McNeal worked with CH2M HILL in their Tampa office for 21 years, where he was Director of Groundwater Practices and Reuse for their Southeast Region when he left to start his new firm.

Mr. McNeal has been actively involved with several deep injection well projects for the power industry throughout northwest, central, and southeast Florida with three different industrial clients. He has overseen many of the permitting activities for these injection wells, including an alternative design to the conventional tubing and packer design that was approved for the injection wells in northwest Florida. This resulted in considerable cost savings for the two injection wells under construction at that site. In west central Florida, Mr. McNeal assisted the prime consultant with obtaining a permit for an exploratory injection well to be completed to a depth of 5,800 feet, which will be the deepest injection well of its type in the state.

For the Southwest Florida Water Management District (SWFWMD), Mr. McNeal provided hydrogeologic services on a project to better understand the fate and transport associated with arsenic mobilization resulting from ASR wells in west central Florida. Results from the study were promising, demonstrating that arsenic attenuation is occurring and can be expected to continue at the two ASR facilities studied. The report also demonstrated that the arsenic mobilization is confined to a relatively small area surrounding each of the ASR wells. He is also currently the regulatory task manager on a project evaluating the technical feasibility of recharging up to 40 mgd of reclaimed water in the eastern Tampa Bay area.

For the Peace River/Manasota Regional Water Supply Authority, he served as project manager for the Authority's potable water ASR expansion from its current 21-well ASR system to approximately 47 ASR wells at this facility. The expansion is currently on hold pending resolution of geochemical issues during cycle testing activities. The firm capacity of the expanded ASR system is expected to exceed 38 mgd at build-out. Mr. McNeal is currently under contract to continue providing senior hydrogeologic services to the Authority under various ASR work orders. Mr. McNeal assisted the Authority with significantly reducing future

wetland monitoring at stations near ASR Wellfield No. 2 through demonstration of the relationship between the groundwater and surface water at the site.

For the Englewood Water District, Mr. McNeal prepared a feasibility/siting study for a reclaimed water ASR test well, managed permitting, design, and construction of a reclaimed water ASR well, obtained a Water Quality Criteria Exemption (WQCE) for color, and assisted with startup and operational testing of EWD's reclaimed water ASR well (the second of its kinds to enter service in Florida) in July 2001. Mr. McNeal continues to provide ongoing services for EWD's reclaimed water ASR program, which has approximately 700 MG of reclaimed water in storage. Under Mr. McNeal's direction, the EWD obtained an ASR Operating Permit from FDEP in early 2008, the first ASR operating permit issued in Florida.

Mr. McNeal served as project manager for an ongoing 14 mgd ASR program for the City of Tampa, the largest ASR program in the Tampa Bay area. He coordinated expansion activities at the Rome Avenue Park ASR site, a 10 mgd, 8-well ASR system located in an urban setting adjacent to the City's potable water distribution system. Complex geochemical issues and other regulatory and technical issues have been addressed under Mr. McNeal's supervision. The system has supplied approximately 15% of the City's water supply during recent droughts.

For the South Florida Water Management District (SFWMD), Mr. McNeal is providing services for a 50 mgd ASR facility as part of the Lake Okeechobee and Estuary Recovery (LOER) program. Mr. McNeal has provided senior hydrogeological support services during the Phase I activities, which included drilling an exploratory well to evaluate two potential ASR zones, siting the proposed ASR wellfield and preliminary design. Mr. McNeal is also assisting the District with re-activating the Taylor Creek ASR site, a project that will result in treating 5 to 10 mgd of surface water prior to storage. Mr. McNeal assisted the project team with evaluating the various treatment options available to reliably treat and store this water.

For the Manatee County Public Works Department, Mr. McNeal was CH2M HILL's Senior Hydrogeologist for a project to evaluate and implement a reclaimed water ASR program and expansion of the County's potable ASR system at the Lake Manatee WTP. He provided significant input into the permitting of the initial reclaimed water ASR well in the County.

For Hillsborough County, Mr. McNeal served as project manager for the reclaimed water ASR program in the county's Northwest Service Area, the first ASR well of its kind in Florida to be permitted and constructed. The system began cycle testing in July 2001. This program led the way for several other similar projects in west-central Florida. Feasibility assessments and permitting activities were also completed under Mr. McNeal's supervision for sites at the County's South County WWTP and in the central portion of the County's services area.

Mr. McNeal also served as Principal Investigator and provided project support while with ASRus for a project conducted by the WateReuse Foundation evaluating microconstituents in groundwater, surface water, and reclaimed water. The project was funded in large part by the SWFWMD, with sampling at 13 sites primarily in Florida. Results of the study were promising, demonstrating the high quality of reclaimed water produced from advanced secondary treatment facilities undergoing high level disinfection is very similar and in many aspects better than the groundwater and surface water supplies it was compared against.

Mr. McNeal has also been very active in FDEP rulemaking, including Underground Injection Control (UIC) regulations (62-528, Florida Administration Code [FAC]), reuse regulations (62-610, FAC), and wellhead protection (62-521, FAC). He is currently serving a one-year term as President of WateReuse Florida, the state section of the WateReuse Association.